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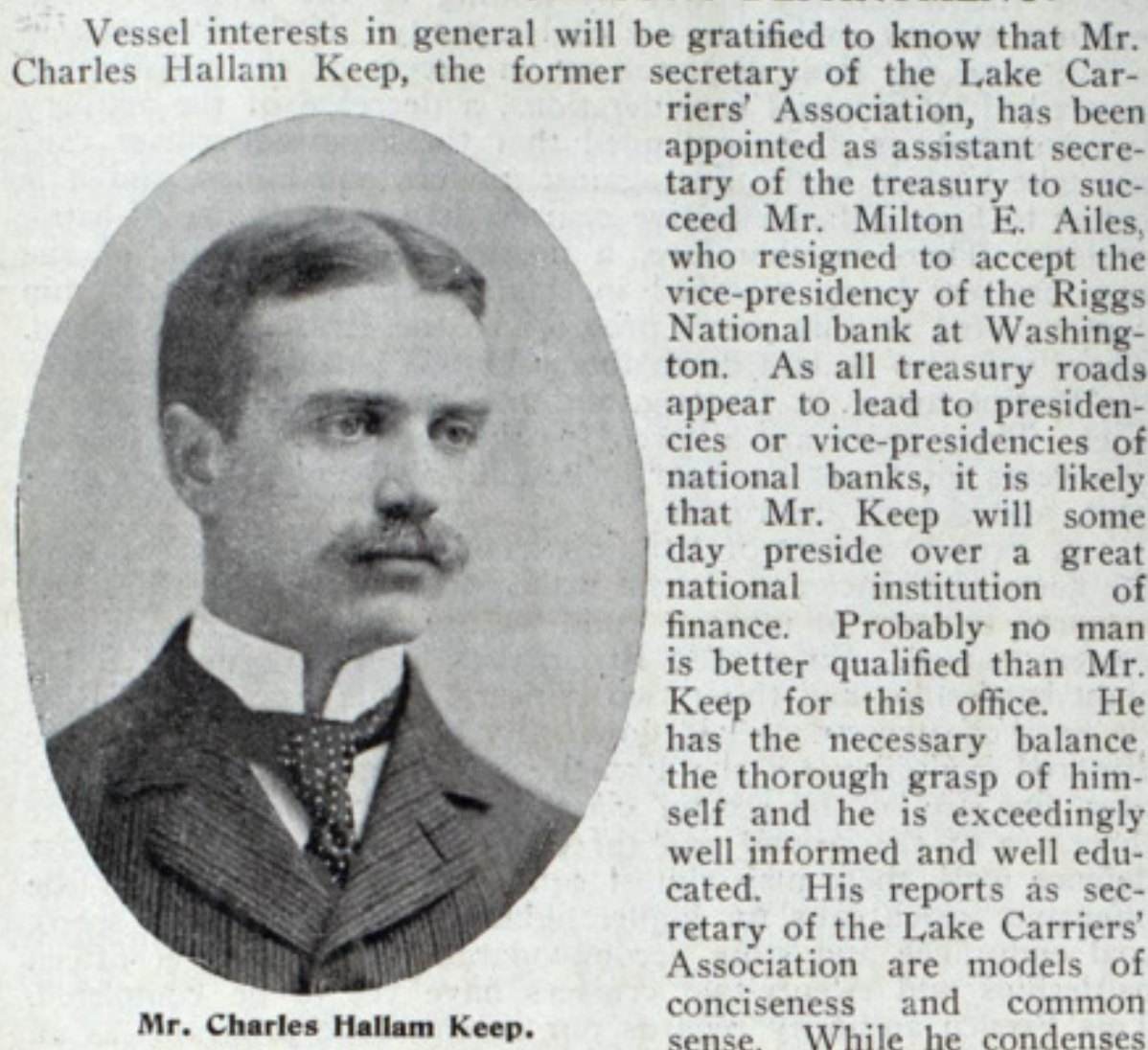
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No. 22

MR. KEEP IN THE TREASURY DEPARTMENT.



Mr. Charles Hallam Keep.

Vessel interests in general will be gratified to know that Mr. Charles Hallam Keep, the former secretary of the Lake Carriers' Association, has been appointed as assistant secretary of the treasury to succeed Mr. Milton E. Ailes, who resigned to accept the vice-presidency of the Riggs National bank at Washington. As all treasury roads appear to lead to presidencies or vice-presidencies of national banks, it is likely that Mr. Keep will some day preside over a great national institution of finance. Probably no man is better qualified than Mr. Keep for this office. He has the necessary balance, the thorough grasp of himself and he is exceedingly well informed and well educated. His reports as secretary of the Lake Carriers' Association are models of conciseness and common sense. While he condenses well, there is nothing more to be said on a subject when Keep gets through with it. In his mental make-up he is very much like Cortelyou, the new secretary of commerce—a perfect machine for method. Mr. Keep is a graduate of Harvard university in the collegiate and law courses and has been a practicing lawyer in Buffalo for a number of years. He was for a while also the secretary of the Merchants' Exchange of Buffalo and has been closely identified with the business life of that city. He is about forty years old. Mr. Keep assumes the duties of his new office at once.

LUXURIES WEIGH 350 TONS

Rear Admiral Bowles, chief of the naval bureau of construction, has made a calculation, based on investigations made by officers of his bureau, of the weight of luxuries carried on a battleship of recent construction. In the preparation of plans and designs for war vessels there is almost a constant contention between the several bureaus in regard to the weights that should be carried. These controversies are usually settled by a compromise in which something is yielded by each, but the result is often unsatisfactory and not infrequently has proved detrimental to the efficiency of the vessel. At a recent meeting of the board of construction Admiral Bowles declared that on each battleship there were 350 tons of luxuries, a statement which startled the members of the board. Included in these so-called luxuries are materials of every description that cannot be classified as necessities, such as furniture, ice machines, refrigerators, radiators, and the machinery required for them. It is pointed out that flagships are supplied with two bathrooms and appurtenances for the flag officer, while one bath tub is deemed sufficient for the wardroom in which fifteen or twenty officers live. There will be undoubtedly a protracted discussion as to what constitutes luxuries, but officers generally believe that much of the weights which Admiral Bowles described might be abolished and the space given to what may be called necessities. There will be little discussion outside of the flag rank as to the necessity for two bath tubs in the elegant and spacious quarters set apart for the admiral. The additional bath is provided for the guest of the admiral in case he should have one, which seldom happens.

GERMAN BATTLESHIPS SUPERIOR.

In reference to the signed article of Count von Reventlow, published in the Berlin Tageblatt, attacking Rear Admiral Melville, engineer-in-chief of the United States navy, for his statement in regard to the superiority for their tonnage of the German battleships, Admiral Melville declares that his statements that the German battleships for their displacement are the superior of any others will be recognized when the following facts are considered:

First—For their tonnage, the German battleships have the highest speed.

Second—by the reason of the triple-screw installation of machinery they have superior maneuvering qualities. There are also structural and economical advantages secured by such an installation of machinery. During the past year all naval strategists and tacticians have ascribed a greater value to the maneuvering factor, and therefore the advantages of the triple screw installation are now receiving a consideration that was never accorded before.

Third—By reason of the fact that the German battleships are without the numerous luxuries that are installed in those of other nations, increased weight and space have been given to those motive appliances upon which the fighting efficiency of the ship depends.

Admiral Melville says that his purpose in praising the German navy was to secure in this country an installation of motive machinery that is demanded by the conditions of today, for it is only inviting danger to distribute the 25,000 H. P. that is transmitted by the two-screw shafts of a modern armored cruiser when such power could be transmitted on three shafts, thus giving the ship greater security, increasing her steam radius and improving her maneuvering qualities.

BIDS FOR TWO GUNBOATS.

The Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York, was the lowest bidder for the new gunboats, Dubuque and Paducah, sealed proposals for which were opened by the navy department last week. The bid was \$295,000 if the department's designs are followed, and \$286,000 if the department's designs, except boilers, are followed. The time for completion is eighteen months. Other bids were as follows: The New York Ship Building Co., Camden, N. J., one boat, department's designs, to be completed in twenty months, \$400,000; Bath Iron Works, Bath, Me., both boats, department's designs, \$735,000, or one boat, department's designs, and one boat, department's designs except boilers, \$730,000, or one boat, department's designs, and one department's designs except boilers, which are to be of a special type, \$723,000; Townsend & Downey Ship Building & Repair Co., Shooters Island, N. Y., both vessels, after department's designs, one to be completed in eighteen and one in sixteen months, \$378,000 each.

The gunboats will measure 174 ft. on load water line and 35 ft. extreme breadth. With 1,085 tons displacement, they will have a total coal bunker capacity of 200 tons. Their armament will consist of six 4-in., four 6-pounders and two 1-pounder rapid-fire guns and two Colt automatic guns. Vertical twin-screw, triple-expansion engines will propel them. The contract speed of the gunboats is 12 knots. Combining great seaworthiness with a mean draught of only 13 ft. at full load, the new gunboats are to be of a type specially suited and, in fact, intended for service on the shallow rivers of South America and the harbors of the West Indies, where revolutions frequently call for the presence of men-of-war to protect American interests. Because of the almost total lack of such a type of boat in the navy today congress will be asked at the next session to authorize the construction of more vessels of this type.

A NEW OCEAN FREIGHTER.

It so happened that all of the few American steamships in the transatlantic trade—not more than nine or ten all told—belong to the International Mercantile Marine Co., the Morgan merger. Most of the American ships on the deep sea run to the West Indies or in the Pacific. The new Atlantic Transport liner Maine, however, is the third of a new class of native-built steamers designed especially for the carrying of cattle and heavy freight to Europe. There are three of this class now afloat—the Massachusetts, Mississippi and Maine—and a fourth, the Missouri, is building. The other American ships in the transatlantic service carry passengers as well as cargo. But the Maine and her sisters carry freight and freight only. The Massachusetts and Mississippi were built at the New York Ship Building Co.'s yard at Camden; the Maine and the Missouri at the Sparrows Point yard near Baltimore. The Maine is a steel vessel, and altogether a good example of American skill in marine construction. She is 507 ft. long, 58 ft. wide, and 43 ft. deep. Fully loaded she displaces 17,200 tons and she can carry 10,400 tons deadweight cargo, or 536,000 bu. of wheat. There is no more economical or efficient cargo ship afloat. The Maine has eight watertight steel bulkheads four decks and nine hatches for loading and unloading cargo. Between the upper and the shelter decks and on a short deck above the shelter deck there are stalls for 750 head of cattle.

The Maine is a twin-screw ship, driven by triple-expansion engines. Her designed speed is about 12 knots an hour loaded, or considerably above the average for cargo ships on the North Atlantic. The steel hull is unusually strong and heavy. As an American steamer the Maine must have American citizens as officers. She is one of the largest ships that fly the flag of the United States and, like all her Atlantic Transport sisters, was designed to ply regularly in the International Mercantile Marine Co.'s service from Baltimore to London.

GLASGOW SHIPPING LETTER.

Peace Seems Again Assured in the Ship Yards—A Large Amount of Pig Iron still coming to the United States—Not always abuse of the Belleville Boilers—Miscellaneous Items.

Glasgow, May 18.—The trouble among the machinists in the ship building industry is now entirely in the direction of peace, notwithstanding the unfavorable outlook of a week or two ago. The Clyde men of the engineering trade were positively given to understand that they must obey the instructions of the executive council of the Amalgamated Society of Engineers (they had quit work against the wish of the council while matters were pending with employees) and they were very much inclined to do so when they found they would get no strike pay. Peace seems assured for at least three months, when the question of wages may again come up if conditions as to orders in the ship yards warrant a change.

The pig iron market has been very much disturbed by the dispute in the ship building trade as well as by the character of the American advices. Last week there was a rapid run of heavy selling warrants, followed by a hardening, but as prices hardened transactions dwindled. All the weak bulls of warrants seemed to be cleared out, and the stiffening was due to short sellers seizing the opportunity to close or reduce their commitments. Of legitimate business there was little or none, until London operators, attracted by the low price, began to buy again. This brought in a new set of bears who speculated heavily on the strike in the ship building trade coming off on an extensive scale. This week with more appearance of a peaceful settlement of the dispute sellers withdrew and prices recovered about a shilling a ton. Moreover, the receipt of an order for a small quantity of Cleveland foundry iron for America (after the demand for that quality from your side was believed to be over) and some further inquiries for hematite iron, gave more strength to warrants. There are now under 17,300 tons in Connal's Glasgow store and about 143,000 tons in the Middlesbro store, whilst the visible stocks of Cumberland hematite are only 26,200 tons. At time of writing Cleveland warrants are 46s. 6d., Scotch 52s. and Cumberland hematite 59s. 9d. But this week the warrant market here, and business generally is dislocated by the state visit of the king and queen to Glasgow and its attendant ceremonies. Makers' prices have varied little. In Scotland there are now eighty-six furnaces in blast as against eighty-five last year. The shipments both from the Tees and from Scotch ports are keeping ahead of last year. The shipments to foreign countries in April amounted to 93,578 tons as compared with 72,884 tons in the corresponding month. The shipments to the United States in April were 34,840 tons and in the four months ending April 184,471 tons, the corresponding figures last year being 7,720 tons and 34,840 tons respectively. All this means a large business doing with your side still. It is not confined to crude iron for considerable orders are on hand for both crude and finished steel. We had no imports of American pig iron into this country in April and have only had 836 tons in the four months ending April. In the first four months of 1902 we had 4,907 tons and in the first four months of 1901 we had 25,311 tons. Times have changed, but next year you will probably be sending us liberal quantities.

NOT ALWAYS ABUSE OF THE BELLEVILLES.

It is not always abuse one hears of the Belleville boiler. A full-power trial made by all the ships of the Mediterranean squadron resulted in the superior performance of the vessels with these boilers. On an extended run the vessels with the water-tube boilers consumed from 1.7 lbs. to 2.1 lbs. of fuel per indicated horse power per hour, while in the case of the ships with cylindrical boilers the rate varied between 2.2 lbs. and 2.9 lbs. The speed of the Belleville-boiler ships was in some cases 3.5 miles per hour greater, and in no case was it less than 1½ miles. The water-tube boiler ships are, no doubt, newer, but the cylindrical boiler vessels were built originally to steam as fast, and the difference is claimed to be due almost entirely to the superiority of the water-tube system in generating a greater volume of steam for a given weight. Admiral Domville, who was president of the water-tube boiler committee, in selecting the ships to escort the king's yacht from Malta to Naples, had to confine himself to Belleville-boiler ships, as none of the others could keep pace with the 18-knot speed of the royal yacht. At Naples all the ships gathered to honor the king's visit were of the water-tube boiler classes with the exception of the Diana. On the run from Cherbourg to Portsmouth the two Belleville-boiler cruisers with the royal yacht, which herself has water-tube steam generators, outpaced the two ships with cylindrical boilers and arrived at Spithead first. The engine-room staff are gaining experience, and now very little is heard of defects. The fact seems to be that the water-tube boiler was introduced at too rapid a rate to suit the training and experience of the naval officers. But that is rectifying itself quickly. The chief danger now from indifferent treatment is the possibility of pitting, especially in the economiser tubes, but pitting is not peculiar to Belleville economisers. It exists in nearly every type of water-tube boiler and in many forms of locomotive marine boilers. The average coal consumption in harbor of the water-tube-boiler ships is from 1 to 2 tons less per day than that of other ships. The water loss difficulty is being overcome, and now some of the

Belleville-boiler ships in commission are using much less water than the other ships.

EUROPEAN NAVAL MATTERS.

The Germans formerly believed that speed is not the most important quality in a modern cruiser, and in their recent ships, while they have on limited displacement a high gun power with armor protection, the speed has been very low—18 knots as compared with the 22 and 23 knots of other powers. The result of the recent German manoeuvres was to enforce the importance of speed, and the German government is now determined to increase the machinery power by adding to the weight of the engines, etc., as well as to the coal capacity. If this requires an addition to the total displacement in excess of the possibilities prescribed by financial considerations, a decrease of the artillery is advocated, as it is contended that the armored cruiser cannot take a place in the line against modern battleships, and it is better to have a fast effective cruiser than a weak line-of-battle cruiser. There is, therefore, a prospect of the design of the new cruisers being modified in this direction. One such ship contemplated in this year's program is the Ersatz Deutschland. There will also be laid down this year two battleships—one, like the Braunschweig, at Dantzig, and another of a modified type at Kiel. Three years are allowed for the completion of these, and two years for a small cruiser to be built at Bremen, a river gunboat, and several destroyers.

A French analyst of Britain's naval position compared with the fleets of France and Russia makes out that in battleships and armored cruisers of modern build we are only equal to the two powers named. Since 1889 Britain has built or ordered forty-eight battleships and thirty-two cruisers, while France and Russia have constructed or laid down fifty battleships and thirty-one armored cruisers. Of the French twenty-one battleships, however, five are of the second class and of Russia's twenty-nine three are of the second and three of the third class. In coast defence work these may almost equal our ships but not for the offensive, which calls for higher fighting qualities, greater speed, coal endurance and store accommodation. Of our fleet fifteen battleships and twenty-two cruisers have yet to be completed. This French authority regards our recent large programs as an indication of Britain's determination to have a large fleet of armored cruisers. In six years we have laid down thirty-two armored cruisers; France and Russia have laid down twenty-two. But we have a much greater fleet of merchant ships to protect, apart altogether from our extensive colonial seaboard. This is said to be all the greater reason for no cessation of building operations on the part of our European neighbors. It is contended that the probable primary action of France would be the destruction of our commerce and the stopping of our supplies of food and raw material. Well, she would find it a tough job. Germany is also building two third-class cruisers, side by side, identical in form and boiler equipment, the only difference being that the one will have twin-screw reciprocating machinery while the other will have steam turbine machinery driving four shafts, the turbines being so arranged that they may work at two, three or four stages of expansion according to the amount of power required. This is to improve the economy at low powers. The two ships will be tried under the same conditions over the same course, at the same time and at the same speeds. The ships' lines and resistance being the same, it will be demonstrated how the coal consumption of the two systems of marine propulsion compare. Comparative progressive speed runs will be made under the same conditions.

NEW SHIP BUILDING ENTERPRISES.

Bad as ship building may be just now it is not expected to be so always and progression or extensions go on for future work. Faith in the future of the industry is disclosed by the preparations which are proceeding in various quarters. Rapid progress, for instance, is being made with Messrs. Beardmore's new establishment at Dalnair. Sir William Arrol & Co., Ltd., Dalnair Iron Works, have just commenced there the erection of a new engine and boiler shop. This is a steel structure of the Arrol type, and it will be one of the largest—if not the largest—in the kingdom. It will be between 700 and 800 ft. long, and between 300 and 400 ft. wide. A new yard is being projected at Greenock. A new yard has just been established at Port Glasgow by Messrs. Ferguson Bros., whose first order is to build and engine two powerful screw tugs for the Clyde Shipping Co. It is the Clyde Shipping Co. who undertake the embarking and disembarking of passengers and mails on board the American liners which call at Queenstown.

LARGEST BATTLESHIP IN THE WORLD—MISCELLANEOUS MATTERS.

On Wednesday last there was launched from the yard of the Fairfield company the largest battleship in the world, the Commonwealth, for the British navy. This is one of the battleships ordered by the admiralty at the beginning of last year and the first of three to be put in the water. She has been practically only ten months on the stocks, which is a record in battleship building. She will be the first warship under the new arrangement, which is to say that she will be finished complete for active service before leaving the builders' works.

The steamer Westmount, built by C. S. Swan & Hunter, Ltd., Wallsend, for the Montreal Transportation Co., has just had her trial trip. The principal dimensions of this vessel are: Length over all 254 ft. 6 in.; breadth, extreme, 42 ft.; depth moulded, 23 ft. She has been designed for Canadian lake trade

and has been constructed to take the highest class of the British Corporation registry. The machinery is by the North-Eastern Marine Engineering Co., Wallsend, and consists of a set of triple-expansion engines, 21 in., 35 in. and 58 in. diameter, with 39-in. stroke, steam being supplied by two single-ended boilers, 13 ft. 9 in. diameter by 10 ft. 3 in. long, working at a pressure of 180 lbs. per square inch. A mean speed of 11¼ knots was attained on the measured mile.

The Spartiate, cruiser, Capt. A. G. Tate, just arrived at Hong Kong from Portsmouth, averaged on the voyage 13 knots, which is her ordinary cruising speed. She has burned less coal than any other warship, British or foreign, which has ever visited Hong Kong. Her consumption was 2,600 tons. The Amphitrite, on the same voyage, at an average speed of 13 knots, consumed 3,900 tons; the Blenheim, cruiser, fitted with Scotch boilers, used nearly 4,000 tons for an average speed of under 12 knots. The Spartiate is to be the Australian flagship, and the colonies will have in her the most economical and best-steaming cruiser in the British navy.

PHILADELPHIA SHIPPING MATTERS.

Philadelphia, May 27.—The New York Ship Building Co. at Camden, N. J., across the river has just secured from the Merchants & Miners' Transportation Co. an order for a steamer that will trade between Boston and Savannah. It is to cost a little less than \$400,000 and will be of 3,500 tons register. It will be 315 ft. long, with fine accommodations for 110 cabin passengers. One improvement over most of the old style coast vessels will be the placing of the dining saloon on the upper deck, thus affording greater coolness and better ventilation.

Following are the vessels now being constructed, or which are to be constructed, at the yards of the New York Ship Building Co.: J. M. Guffey, 300 ft. long; Texan, 471 ft. long; Nevadan, Nebraskan, each 360 ft. long; Mongolia, Manchuria, each 615 ft. long; Massachusetts, 505 ft. long; United States cruiser Washington, 504 ft. long. Vessels not as yet named: Two oil barges, each 135 ft. long; two fireboats for the city of New York, each 117 ft. long over all. The company is also to build two dredges, one 206 ft. long and the other 150 ft. long, as well as two railroad car ferryboats, each 317 ft. long. The work of completing the Larimer, the oil steamer launched last Saturday for the Guffey Petroleum Co. of Pittsburg, is being vigorously pushed.

Directors of the William Cramp & Sons' Ship & Engine Building Co. met last week and accepted the resignations of Directors Thomas Dolan, Clement A. Griscom, Samuel Dickson and Morton McMichael. Their resignations were presented about a week ago, but no action was taken by the board at that time, pending the completion of financial negotiations then under way. The new directors chosen were H. A. Berwind, William M. Potts and Henry S. Grove of Philadelphia and S. L. Hine and J. W. Dunn of New York. Mr. Berwind is a soft coal operator; Mr. Potts is interested in coal and iron businesses; Mr. Grove is a commission merchant and the president of the Merchants & Miners' Transportation Co. Mr. Hine is vice-president of the First National bank of New York and Mr. Dunn is president of the International Steam Pump Co. The other directors of the company are E. S. Cramp, vice-president; W. H. Barnes, F. S. Potts and Albert Strauss. Charles H. Cramp will remain as president of the ship building company.

Aug. 26 has been fixed as the date of the launching at Cramp's of the first-class armored cruiser Pennsylvania. Work is being rushed on the hull of the big warship, which is now over 50 per cent. completed. Miss Susan Quay, daughter of the Pennsylvania senator, will probably christen the vessel and the launching will be made a gala occasion in every way. The Colorado, recently launched, is now lying in the Delaware facing the stern of the Pennsylvania, awaiting her complement of armor.

Acting Secretary of the Navy Darling has directed the final acceptance by the government of the torpedo destroyers Dale and Stewart. The Dale has a displacement of 240 tons with indicated horse power of 8,000. She is credited with 28 knots speed. She has twin screws and two torpedo tubes. The Dale was built at the Wm. R. Trigg Co.'s works, Richmond, Va. The Stewart, built by the Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, N. Y., is similar to the Dale, except that with 7,000 H. P. her speed is put down as 29 knots. The torpedo boat destroyer Hull, recently completed at the Harlan & Hollingsworth Co.'s works, Wilmington, was placed in commission at League island last Friday. The Hull has a displacement of 208 tons; has 7,200 H. P., and is credited with a speed of 29 knots. The vessel was turned over to her commander, Lieut. Samuel Robinson, who immediately went aboard with a crew of ninety picked men from the receiving ship Minneapolis.

A strike of marine engineers, similar to that inaugurated in New York recently, is looked for at this port. The men have demanded that on and after June 1 the current rates of wages shall be increased 25 per cent.; that twelve hours shall constitute a day's work, and overtime shall be paid for every hour's work beyond that time. Of course the employers are trying to meet the situation in an organized way and are just now very much interested in the proceedings in New York which have in view the revocation of licenses of the men on strike.

Several Philadelphia vessel owners went to New York Saturday to inspect the longest pier ever built in the United States,

situated at the foot of Forty-fourth street, Brooklyn. The pier measures from the bulkhead to the extreme end 1,314 ft. or 24 ft. short of a quarter of a mile. Its width is 150 ft., which gives it a floor space of 197,100 sq. ft. It is the only pier that can suitably accommodate vessels like the White Star liners Cedric and Celtic and the North German Lloyd's Kaiser Wilhelm II.

The new steamship City of Macon, recently launched at Roach's ship yard, Chester, Pa., left Philadelphia last Saturday on her trial trip, the speed test being made down the Delaware river and bay and out to sea as far as Five Fathom Bank light-ship where the vessel's steering gear was tested. The City of Macon was built for the Ocean Steamship Co. of Savannah to ply on the company's line between that city and New York.

Between 400 and 500 men employed in the marine department of the Maryland Steel Co. at Sparrow's Point are on strike as a result of the company's refusal to reduce working hours from nine to eight. The company says that business being quiet the men will not be reinstated.

Select and common councils of Philadelphia on May 22 elected as members of the board of port wardens to serve for two years the following named: William L. Martin, James G. Ramsdell, Mathias Seddinger, Joel Cook, Edmund L. Levy, J. J. Stoer, Chester C. Ray and Selman G. Chase. The last three are new members.

Capt. Wm. Bainbridge-Hoff, U. S. N., retired, who died at Washington May 22, aged fifty-six, was born in Philadelphia. He was the author of several standard works on naval tactics, some of which have been translated in several languages.

The American steamship Florida, altered at J. H. Dialogue's ship yards, Camden, into an oil-tanker for J. C. Culinan of Beaumont, Texas, steamed for Galveston May 20. The Florida is valued at \$110,000. Capt. Minot is in command.

C. L. Smith, H. L. Homer and Walker Page, who were employed at the New York Ship Building Co.'s works, successfully passed examinations for government inspectors of hulls (navy department) last week. Homer has been assigned to duty at the Brooklyn navy yard; Smith at Boston, and Page is awaiting an assignment.

Seven dredges are now at work on the channel of the Delaware river south of Philadelphia, and their rate of output is more than 600,000 cubic yards per month.

BOND CONVERSION PLAN STILL ON.

Members of the syndicate formed to underwrite part of the \$250,000,000 United States Steel Corporation bond issue, under the preferred stock conversion plan, have received under date of May 21 the following letter from the syndicate managers:

"Regarding the syndicate's agreement of March 12, 1902, we beg to notify you that the time for subscription by preferred stockholders having expired, we are now prepared to exchange for the new bonds the balance of the 800,000 shares of the United States Steel Corporation's preferred stock deposited with us and which was not required for exchange on the syndicate's agreement. Will you at your earliest convenience, and not later than June 1, 1903, kindly advise us on the form inclosed whether you desire us to exchange your shares of such balance of stock, to the return of which you are now entitled. Such exchange will be made only upon the understanding that the bonds received therefor will be held on deposit by and upon the same terms as the bonds already received by us on the syndicate agreement of March 12, 1902. Unless instructed by you to make such exchange on or before June 1, 1903, we will return to you the proportional part of the preferred stock deposited under the syndicate agreement and to which you are now entitled as stated above."

The syndicate contract guaranteed subscription for at least \$100,000,000 of the bonds at par, payment to be made for \$80,000,000 in preferred stock at par and for the remaining \$20,000,000 in cash. The shares which the syndicate managers say in their letter are subject to the syndicate subscribers' instructions are those held by the syndicate to make effective its guarantee, but offset by the actual presentation of preferred stock for conversion by the shareholders of the company in general. These outside shareholders, it has been understood, presented between \$40,000,000 and \$50,000,000 of preferred stock for conversion into bonds, which left it to the syndicate to make up the difference between the amount of the shareholders' subscriptions and its \$80,000,000 guarantee. The contract of the syndicate also allowed it to purchase, if it desired, "any and all of the bonds so offered to holders of preferred stock and not subscribed for by them" up to the aggregate of \$200,000,000 sold for stock and \$50,000,000 for cash. The privilege of converting United States Steel preferred stock into bonds, which expired for the general public on May 16, does not expire for the syndicate until Oct. 1 next.

Evidently the newspapers cannot leave Mr. Charles M. Schwab, president of the United States Steel Corporation, alone. He has been represented during the past week as suffering from ill health and of disposing of his Steel stock, both of which he has taken occasion to deny. He said that he was buying and not selling Steel stock and believed that at the prices ruling it is the best investment on the market.

Before the season is over breakwaters will be built by the government at Michigan City, Ind., and St. Joseph, Mich., each costing about \$280,000.

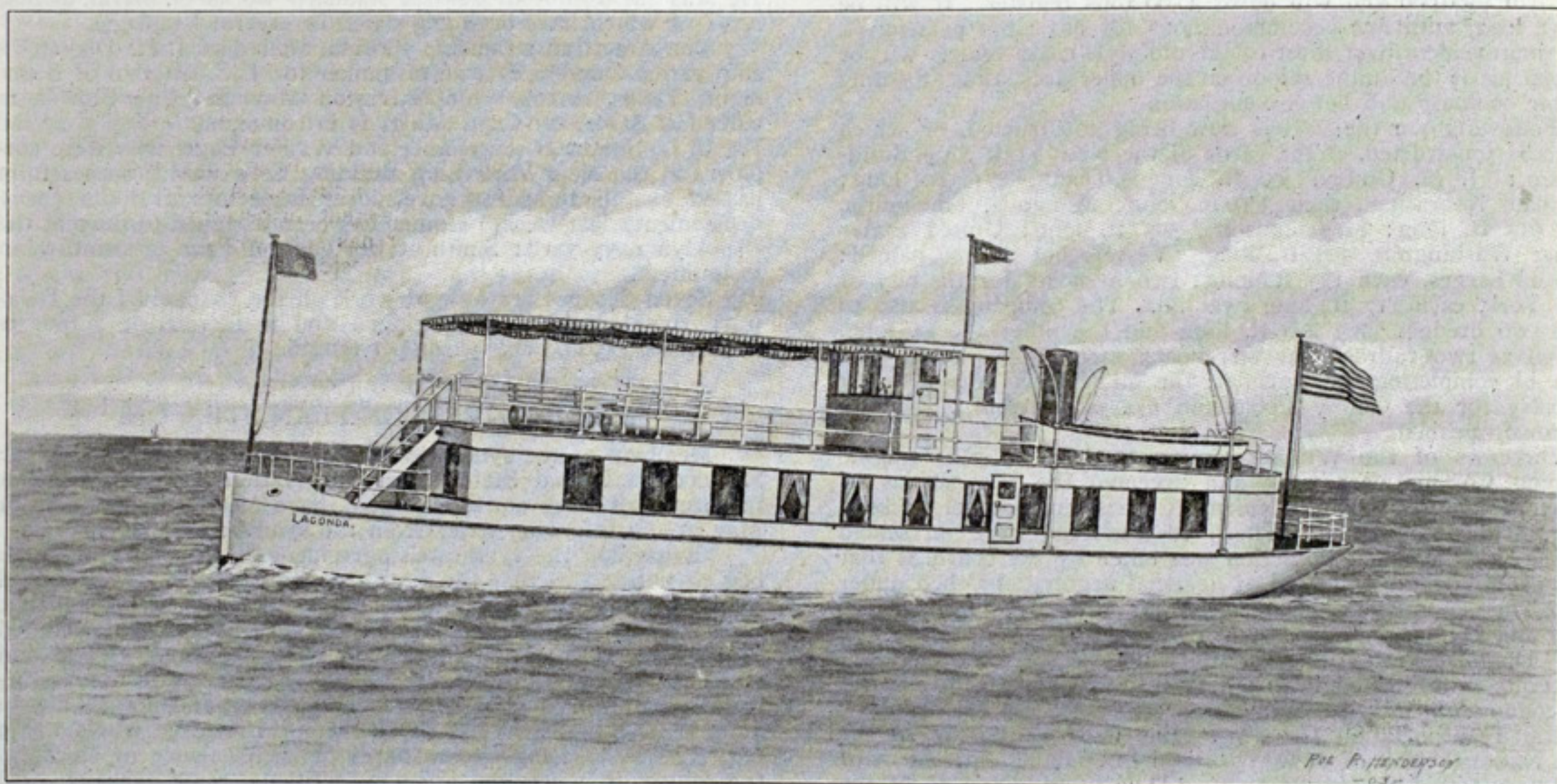
NEWS OF THE GREAT LAKES

NOVEL METHOD OF BUILDING A PLEASURE CRAFT.

Mr. John J. Hoppes of Springfield, O., has constructed a 75-ft. boat for cruising on the great lakes under very novel circumstances. The hull was built at his own factory in Springfield and transported by sections to Holland, Mich., where it was put together and its machinery installed. This method of construction was decided upon because Mr. Hoppes could not find a builder to guarantee delivery within the stipulated time. As the hull was to be of 16 ft. beam it could not be transported by rail in one piece and the plan of building it in two longitudinal sections was decided upon. This necessitated some irregularities in design, which were, however, easily overcome. The

launched on July 31 a total of sixty-seven working days. The hull was then turned over to the Wolverine Motor Works at Holland, Mich., which put on the cabin, installed the engines and turned the boat over to the owner on Oct. 1.

The boat has been christened Lagonda and will go into commission in June. She is a handsome little craft of the following dimensions: Length over all, 75 ft.; beam, 16 ft.; draught, 2½ ft. She is intentionally of shallow draught to navigate the rivers of Florida as well as the great lakes. There are four staterooms, three forward and one aft of the main saloon. The main saloon, 15½ by 16 ft., which is also used as a dining room, is provided with an open fireplace, library and side board. The

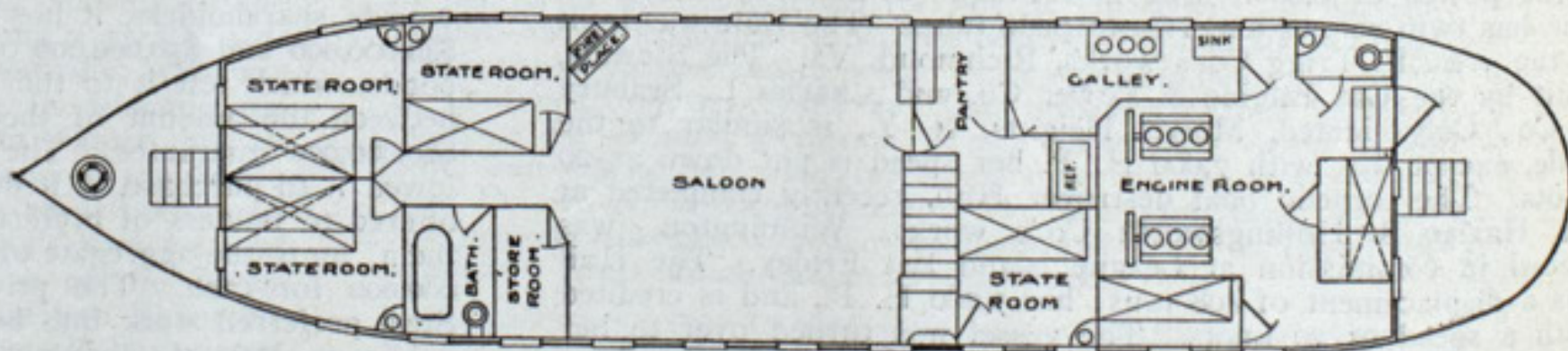
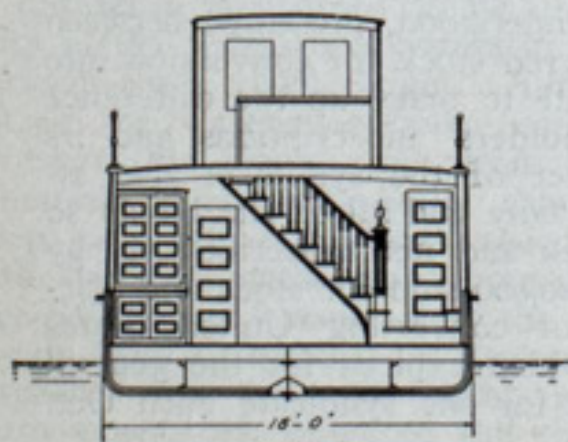


Twin-Screw Pleasure Craft Lagonda.

keel was built up of two 3 by 4 by ¾ in. angles, placed with their long legs downward and holding between them a ¼-in. plate keelson 28 in. deep. The stem was constructed of forgings of the same cross section as the angles but formed to meet the side plating at the proper angle. The frames are of 2½ by 2½ by 5-16-in. angles riveted to the keel and keelson by angle plates. A bulkhead, the full height of the hull, is set 10 ft. from the stem, and three plate frames 24 in. high and the plate keelson divide the hull into nine watertight compartments. A 2-in. angle is riveted on each side of the keelson 8 in. from the top to strengthen it and support the floor beams. Intermediate keel-

pantry and cooking galley are very completely supplied. The pilot and deck house on the upper deck are connected with the main saloon by a broad companionway.

Power is supplied by two 27-H. P. four-cycle Wolverine motors, made by the Wolverine Motor Works, Grand Rapids, Mich. Starting, stopping and reversing is accomplished by a lever operating a clutch on each shaft. The gasoline is carried in a 250-gallon tank forward of the collision bulkhead and the gasoline is conveyed to the engines through a double extra-heavy lead pipe, encased in a 1-in. wrought iron pipe. Comfort rather than speed was desired and yet the boat is able to make about 9



Sectional Views of the Lagonda.

sons of 12-in. channels are set 5 ft. each side of the keelson and riveted to each frame and the bulkheads with angle plates.

The hull was all riveted together with the exception of a double row of rivets the full length of the keel, the stem and the rivets holding the frame and bulkhead angles to the keelson. These rivets were supplemented by bolts in every fifth hole which were removed when ready to ship. Each half of the hull was then loaded on two 36-ft. flat cars with pivot bearing near the center of each car, similar to the manner of loading long pieces of timber. The keel was laid May 14, 1902, the parts shipped July 12, transported by rail 360 miles, riveted together, caulked and

miles an hour, which is not at all bad, considering the size and power.

The boat carries a 16-ft. gasoline launch and a 14-ft. dinghy. She is painted white with the exception of wales and shear planks, which are maroon, and the nosing, window sash and facings, which are cherry.

Licensed tugmen of Chicago have selected Engineer James Dwyer of the city tug Hopkins and former president, Louis Hohman, to represent their association at the annual convention of longshoremen in Bay City next July.

TIME SPENT BY SHIPS IN PORT.

Questions asked by a New York correspondent bring out answers of interest to all readers of the Review.

1. What is the average stay in port of all ore-carrying steamers?

Last year, 1902, was not a year of good dispatch in the ore trade on account of the railway congestion. From statistics prepared by representatives of the United States Steel Corporation on the lakes it is learned that the stay in port, unloading, of all vessels engaged last year by the Steel Corporation, which on account of its great ore movement would fairly represent the entire trade, was a few hours less than three days; and the average time spent at loading ports was about 14 hours. Of course it is understood that this includes time at dock waiting to load or unload. There are instances of vessels loaded with 5,000 gross tons of ore in as short a time as 80 minutes, actual working period, and the same type of vessel unloaded often within ten hours. At Two Harbors, Minn., from which point 5,549,000 gross tons of ore was shipped in 1902, the best results were probably attained all-around for the year in loading vessels. Following is the report of that port: Number of vessels taking one or more cargoes throughout the season, 281; number of cargoes, 1,149; average time actually loading, 8 hours; average cargo, 4,830 gross tons; largest cargo, steel barge Smeaton, 7,576 gross tons; smallest cargo, wooden steamer Rube Richards, 1,076 gross tons; average draught of vessels, 17 ft. 5½ in. Probably in any of the past seasons of best dispatch the stay in port for all ore carriers would average about ten hours loading and full two days unloading. It is not possible to separate the steam vessels from the sail vessels or tow barges in these estimates, but of course the latter are very much in the minority and are growing less in number from year to year. The unloading record at Lake Erie ports (an exceptional case, of course, with automatic machines and everything primed for fast work) is 5,217 gross tons of ore in 3 hours 56 minutes.

2. When was the first whaleback put in service?

In the summer of 1899, the tow barge 101. None of these vessels have been built on the lakes for a long time past and probably none will ever again be built.

3. What is the maximum speed yet attained in loading a ship with coal from cars by use of mechanical devices?

With a full supply of loaded cars of the largest kind, working on large modern vessels, and with everything suited to most-rapid work, the best of the car dumps that turn the car completely over, as well as a couple of fast automatic devices that empty bottom-dump hopper cars into large buckets, will load 1,000 tons an hour. Of course the vessels are delayed in the coal trade as well as they are in the ore trade waiting for turns at docks, for supplies of coal, etc.

CLERGUE WILL REMAIN AT THE SAULT.

Mr. F. H. Clergue announced last week that he is to remain at the Sault in conjunction with Mr. Cornelius Shields, the new general manager of the Consolidated Lake Superior Co. The announcement was made at a smoker given to him and Mr. Shields by the business men of the two Saults. Mr. Clergue was greeted with vociferous applause by the business men, showing that they regard him as the moving force in the enterprises though shorn of a great deal of his former power. He said:

"I feel that perhaps no better man on the continent could have been secured to assume the presidency and management of these consolidated companies than Mr. Shields and in his acceptance of the office I see a prosperous future for these enterprises and for the two cities with which we work hand in hand. Since his arrival here I have assumed a somewhat different position from what I have formerly held. Hereafter I am merely a critical director of the company living at the Sault where I may overlook the work, give advice and ask why this costs so much and why that is not making more money. I think it is a good thing for a director to live on the spot where such large enterprises are being conducted. As one of the heavy stockholders in the company I am naturally anxious that it should do its best and as I am familiar with all the departments from my association with the enterprises, I may perhaps be in a better position than those directors who live in Boston or New York or Philadelphia to give advice and assist in the working out of the plans already laid down and which will be pushed forward as rapidly as possible. The company has large enterprises planned for the Michigan side of the river and in the not-far-distant future we hope to see them begin to assume a substantial form."

Mr. Shields said that before he reached the Sault he had concluded that nothing under heaven could persuade him to remain there for more than a day. He had read a great deal about the enterprises and concluded that there was little bottom to them. However, he was delightfully surprised and found that Mr. Clergue had mapped out work enough to keep him busy for several years.

REMOVAL OF CANAL TOLLS.

Mr. Frank Owen, general agent of the Rutland Transit Co. of Ogdensburg (Ogdensburg Line), has had years of experience in that branch of the lake trade which has to do with the movement of freight down the Welland canal and the St. Lawrence river. In a letter to the Review regarding the recent action of

the Canadian government in removing canal tolls, Mr. Owen says:

"In my opinion there is no question but that the abolishing of tolls of the Canadian canals will prove beneficial to the St. Lawrence route. The effect is already being felt by the increased grain tonnage so far this season. The products of the Canadian northwest are rapidly increasing and will naturally find an outlet to the seaboard by the cheapest route, and the abolishing of tolls, although nominal, will largely increase the shipments by way of the St. Lawrence."

ANOTHER HAWGOOD STEAMER.

Messrs. William A. and Arthur Hawgood closed contract a few days ago with the American Ship Building Co. for a steel freighter of the following dimensions: Length over all, 440 ft.; keel, 420 ft.; beam, 50 ft.; depth, 28 ft. The capacity will be about 6,500 gross tons. The engines will be triple-expansion, 22, 35 and 58 in. diameters of cylinders, with stroke of 40 in., supplied with steam from two Scotch boilers, 13 ft. 2 in. diameter by 11 ft. 6 in. long and fitted with Ellis & Eaves draft. This steamer will come out at the opening of next season and will be managed in the office of W. A. Hawgood & Co., who now operate the steamers J. M. Jenks, Bransford, Harold B. Nye and Josco, and the schooner Olive Jeanette.

RAISING A SUNKEN ELEVATOR.

Kingston, May 27.—The Donnelly Wrecking & Salvage Co. of this city is attempting a wrecking feat that will be fraught with considerable risk. They have just begun the work of raising the floating elevator St. Lawrence, belonging to the Montreal Elevator Co. and sunk in 40 ft. of water in the rapid Moulson's current at Montreal harbor. The task will mean considerable dangerous work for divers. The elevator is a steel one that sank a couple of weeks since.

CANADIAN SHIPPING NOTES.

No appointment of a manager for the Canadian Lake & Ocean Navigation Co. to succeed Capt. Thos. Donnelly has been announced, but marine men are saying that Mr. Askin, at present looking after the North West Transportation Line of the Northern Navigation Co. at Sarnia, will receive the appointment.

The Union Steamship Co. of New Zealand, owning the Canadian-Australian Line, has secured the Australasian mail subsidies for another two years in competition with the Oceanic Steamship Co. of San Francisco. It is understood that new and faster vessels will be added to the service.

A. Piers has been appointed manager of the Canadian Pacific Ry. Steamship Lines, with office at Montreal. Mr. Piers on the date of his present appointment was general superintendent of Canadian Pacific steamers.

A company has been formed at Midland, Ont., to build a number of houseboats. These boats will be towed to desirable locations among the Georgian bay islands as the lessees require.

The steamer Chicora of the Niagara Navigation Co.'s fleet has been fitted with wireless telegraph apparatus, and messages have been transmitted between the ship and the shore station at Toronto.

Names have finally been selected for all three of the very large steam freighters which the American Ship Building Co. is just completing for the Provident Steamship Co., A. B. Wolvin of Duluth, manager. The names are D. M. Clemson, D. G. Kerr and J. H. Reed. The Reed is to be launched on Thursday of this week at the Detroit works. The Kerr was launched at the West Superior works last week. These are the largest and most-costly freighters coming out this season. Dimensions are 468 ft. over all, 448 ft. keel, 52 ft. beam and 28 ft. depth of hold and the capacity 6,900 gross. They will all have quadruple-expansion engines and Babcock & Wilcox water-tube boilers. Engines will have cylinders of 15, 23¾, 36½ and 56 in. diameter with a common stroke of 40 in.

Early next month the steamer Saxona will be launched at the Cleveland yard of the American Ship Building Co. and then all three of the vessels which the American company has had under way during the past winter for G. A. Tomlinson of Duluth will be in the water. On Saturday last the Sanoma of this trio was launched at the West Bay City works. She had been preceded at the same works by the Sinaloa, which is now in commission. These are very large freighters—436 ft. over all, of 6,200 gross tons capacity and having almost double the usual number of hatches to facilitate unloading by automatic machines.

The I. Stephenson Co. of Wells, Mich., recently dredged its slip, which now has a depth of 18 ft. The company has been having some trouble heretofore in loading large vessels on account of a sand-bar at the mouth of the slip. This has been removed and the slip is in good condition.

The steamer Anna C. Minch, recently completed at the Cleveland yard of the American Ship Building Co. for Minch interests represented by Henry Steinbrenner of Cleveland, has just delivered at Duluth her first cargo, a large load of coal from Cleveland.

WAHCONDAH'S MISHAP.

It is unfortunate that the Messrs. R. O. & A. B. Mackay of Hamilton should meet with a costly accident in bringing up to the lakes the first of a fleet of steel steam freighters of Canadian canal dimensions which they contemplate building on the other side. It is understood that they have an order placed for a steamer similar to the Wahcondah and that they are planning to have Scotch or English yards build, later on, four or five such vessels for them. The Wahcondah is now at the Buffalo works of the American Ship Building Co. ready to undergo repairs, which will be looked after by Mr. Robert Logan of Cleveland, who represents the British Corporation on the lakes. After a



Wahcondah aground in the St. Lawrence.

passage across the Atlantic (eighteen days), this steamer, carrying only 1,500 tons, part cargo, ran aground in the St. Lawrence river at Farrin's Point below Prescott. The accident was caused by the vessel taking a sheer through an eddy striking her stern and causing her to collide with a stone wall at an entrance to one of the lock gates. She sank in 15 ft. of water. The Donnelly Wrecking Co. of Kingston raised her and patched her up so that she could proceed to Toronto where her freight was discharged. The steamer then went on to Buffalo to be dry docked. The Wahcondah is 245 ft. long, 37 ft. beam and draws 17 ft. of water. She is intended to be used in grain and package freight business between Duluth, Fort William and Montreal.

LAKE FREIGHT MATTERS.

Rumors of single-trip ore charters at 80 cents from the head of Lake Superior, a reduction of 5 cents from the rate established at the opening of navigation for season contracts as well as for "wild" cargoes, have been heard during the past few days. No doubt the shippers, if they were all so disposed, could have reduced this rate two weeks or more ago, but most of them have been inclined to allow contract rates to stand for single-trip charters, at least until the dull summer period. Vessels that engage in the ore and coal trades are so generally provided for by season contracts that reduced day-to-day rates would affect even less tonnage than last year, and from several points of view it would seem that there is nothing to be gained in the end by lower freights at this time. A general slump in the market is not therefore expected.

AROUND THE GREAT LAKES.

A new tug, the Janie E. Smith, building at the Laird ship yard, Ashtabula, for the Fairport Fishing Co., was launched a few days ago.

Henry C. Felthousen, credited with having invented the fluted-lens signal lamp used on vessels, died at Buffalo Monday at the age of seventy five years.

Capt. John Bassett of Owen Sound has purchased the steamer Wexford and will run her in the grain trade between Ft. William and Georgian bay ports.

The steamer Pfohl, destroyed by fire on Lake Huron a few days ago (fortunately without loss of life), was formerly the St. Paul. She was insured for \$30,000.

It is reported that the steamer Pawnee and barges a few days ago took out of Menominee 2,500,000 ft. of lumber for Buffalo and Tonawanda. This is quite a large amount of lumber for a single tow.

The Northwestern Transit Co. of Sarnia has for some time past been figuring with the Collingwood Ship Building Co. for the construction of a duplicate of the passenger steamer Huronic, built by that company last season.

Secretary Henry Barter of the International Longshoremen, Marine & Transport Workers' Association, has just issued charter No. 500 to coal handlers at Ashtabula. This makes 138 charters issued since the annual convention in Chicago a year ago.

The Manitowoc Dry Dock Co., Manitowoc, Wis., write to say that they are not making extensive additions to their plant

at this time. They are simply putting in steel working tools necessary for the construction of small steel tonnage and repair work.

Harbor Master Lynch of Cleveland says he is determined to put a stop to the practice of dumping rubbish from vessels into the river. He has taken the matter up with the Cleveland chief of police and the latter has promised to help him enforce the ordinance.

The Lake Superior Iron Co. will celebrate its semi-centennial anniversary on June 24. This was the third iron mining company to be established in the upper peninsula of Michigan, the Jackson Iron Mining Co. being the first and the Cleveland Iron Mining Co. the second.

It is reported from Port Huron that R. O. & A. B. Mackay of Hamilton, Ont., have closed a contract to deliver 150,000 tons of iron ore from Michipicoten to Point Edward, where it will be forwarded to Hamilton by rail and that the steamers Donnecona, Strathcona and Wahcondah will be used in this trade. The work of putting in three clam shell hoists at Point Edward has just been completed.

Local Steamboat Inspectors Monaghan and Chalk at Duluth are confronted with conflicting statements in their investigation of the collision between the tug Gillen and the steamer Maunaloa, which occurred last week, resulting in the sinking of the tug. Captains of both vessels claim that they gave the proper signals, and each denies having heard the proper signal from the approaching vessel.

On May 30 the fireboat building by the Ship Owners' Dry Dock Co. at Chicago for the city of Milwaukee will be launched. This fireboat will be one of the finest on the lakes. Her propelling engines, pumps, etc., are ready to be installed so that delivery will follow shortly after the launch. She was built under the supervision of Mr. W. J. Wood, naval architect of Chicago.

Wrecking operations which Capt. M. Ryan and Harry Brooks of Duluth have conducted with the steamer J. C. Suit have not been as successful as they had hoped, owing to the amount of labor involved in getting iron and other stuff of value from sunken wrecks. They had intended to buy the Suit if they were successful, but the steamer will revert to Capt. A. R. Sinclair, the owner. The wrecking expeditions have been abandoned.

The Toledo Furnace Co., new organization to be managed by Pickands, Mather & Co. of Cleveland, has begun to receive ore. The first cargo has just been delivered by the steamer W. W. Brown. It is expected that another new furnace plant, that of the Detroit Iron & Steel Co. on Zug island, just below Detroit, which bears close relations to the Cleveland firm of M. A. Hanna & Co., will begin receiving ore in a few weeks. The buildings are nearing completion and work on the large new docks is progressing rapidly. The main dock running along the River Rouge is nearly completed. This dock will have a capacity of about 200,000 tons. Next week dredges will begin work in front of the wharves so that the largest vessels may reach the plant without trouble. The dock equipment is to include two Hulett automatic unloading machines, so that vessels trading to these new works may expect good dispatch.

REORGANIZATION OF UNITED STATES SHIP.

It is announced from New York that the reorganization of the United States Ship Building Co. provides for an entirely new company with the name Bethlehem Steel & Ship Building Co. The properties are the same as in the first organization, including the Union Iron Works, San Francisco; Bath Iron Works, Bath, Me.; Hyde Windlass Co., Bath, Me.; Crescent Ship Yard Co., Elizabethport, N. J.; Canda Mnfg. Co., Carteret, N. J.; Samuel L. Moore & Sons Co., Elizabethport, N. J.; Eastern Ship Building Co., New London, Ct.; Harlan & Hollingsworth Co., Wilmington, Del.; also all of the capital stock (except directors' qualification shares) of the Bethlehem Steel Co., owning the Bethlehem Steel works and property in the boroughs of South Bethlehem and Northampton Heights.

It is proposed that the new company in the acquisition of all the properties and assets of the ship building company and its constituent companies, including the Bethlehem Steel Co., and for the securing of additional cash working capital shall issue \$12,000,000 of thirty-year 5 per cent. first mortgage gold bonds. There is to be issued voting trust certificates for \$16,000,000 of 7 per cent. non-cumulative preferred stock. This stock is preferred as to assets, as well as to dividends. Voting trust certificates will be issued for \$15,000,000 of common stock. The holders of the present 5 per cent. collateral and mortgage bonds of the company are to receive all of the \$12,000,000 of new bonds.

The total capitalization of the new company will be \$43,000,000. The initial voting trustees will be Messrs. Charles M. Schwab, George R. Sheldon, Max Pam, Charles W. Etmore and James H. Reed of Pittsburg. The plan has already been approved by the holders of large amounts of the various securities.

Executive officers of the new government department of commerce and labor thus far appointed are: Secretary Geo. B. Cortelyou; chief clerk, Frank H. Hitchcock; disbursing clerk, Wm. L. Soleau; solicitor, William Miller Collier; commissioner of corporations, James R. Garfield. The positions of assistant secretary of the department and chief of the bureau of manufactures have not as yet been filled.

How Canadian Waterways are Lighted.

Lieut. Col. F. Gourdeau, deputy minister of marine and fisheries of the Dominion government, lately submitted his annual report, which contains many facts of interest regarding Canadian waterways. The amount expended in the various branches

484.01 for the previous year. The fisheries expenditure amounted to \$393,627.21. During the fiscal year the expenditure for maintenance of lights and coast service amounted to \$537,373.93 and for construction \$158,714.09. The lighthouse service of the Dominion is divided as follows: Ontario division, embracing



Minto working her way through ice in Strait of Northumberland between Prince Edward Island and Mainland.

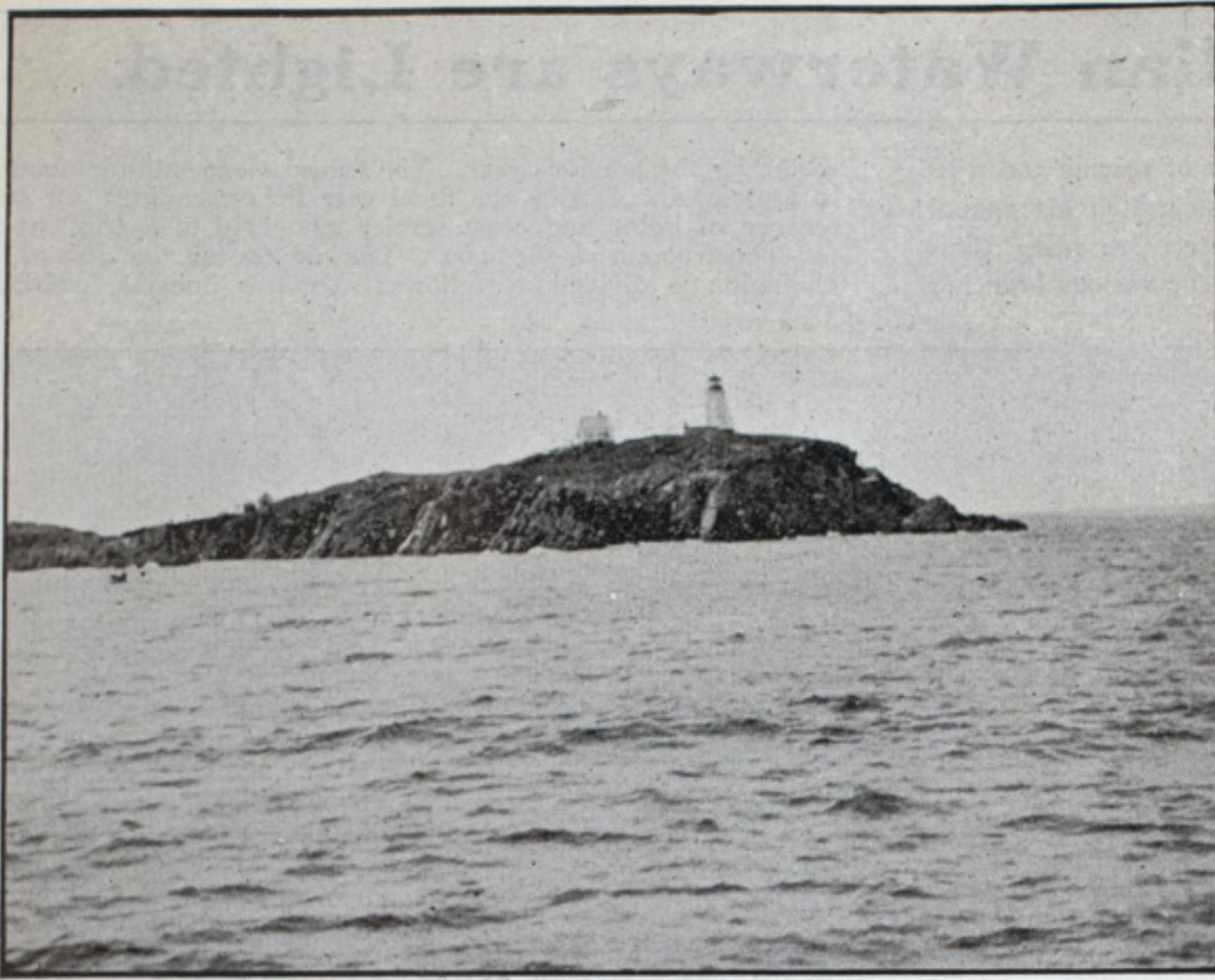
of the public service comprised in the marine branch of the government during the fiscal year was \$1,431,371.76, as against \$967,-

all lights from Montreal westward to the northwest territories; Quebec division, extending below Montreal and including the River and Gulf of St. Lawrence and Strait of Belle Isle; Nova Scotia division, including St. Paul's island, Cape Breton, Sable island and Cape Race, Newfoundland; New Brunswick division, Prince Edward Island division and British Columbia division, each including lights within the provincial boundaries. The total number of light stations, lightships and fog alarm stations in the Dominion was 713 and lights shown 899, the number of steam whistles, fog horns, bells and guns ninety-one; the number of light keepers and engineers of fog alarms with masters of lightships was 719.

The extended coast line of Canada, and numerous bays, inlets, rivers, lakes and harbors and other navigable waters require a large number of buoys, which are maintained at an average cost of \$69,000 per annum. The department has been for some time past substituting steel coast buoys for wooden buoys with favorable results. The districts now buoyed in all parts of the Dominion number about 330 and the buoys number 3,150. The contract system has been found to work most economically and efficiently. In the majority of instances the contractors are immediately under the supervision of departmental officers whose duty it is to report to the department any neglect of work on the part of the contractors. There are now existing about 200 contracts. A large



Louisbourg, N. S., Lighthouse.

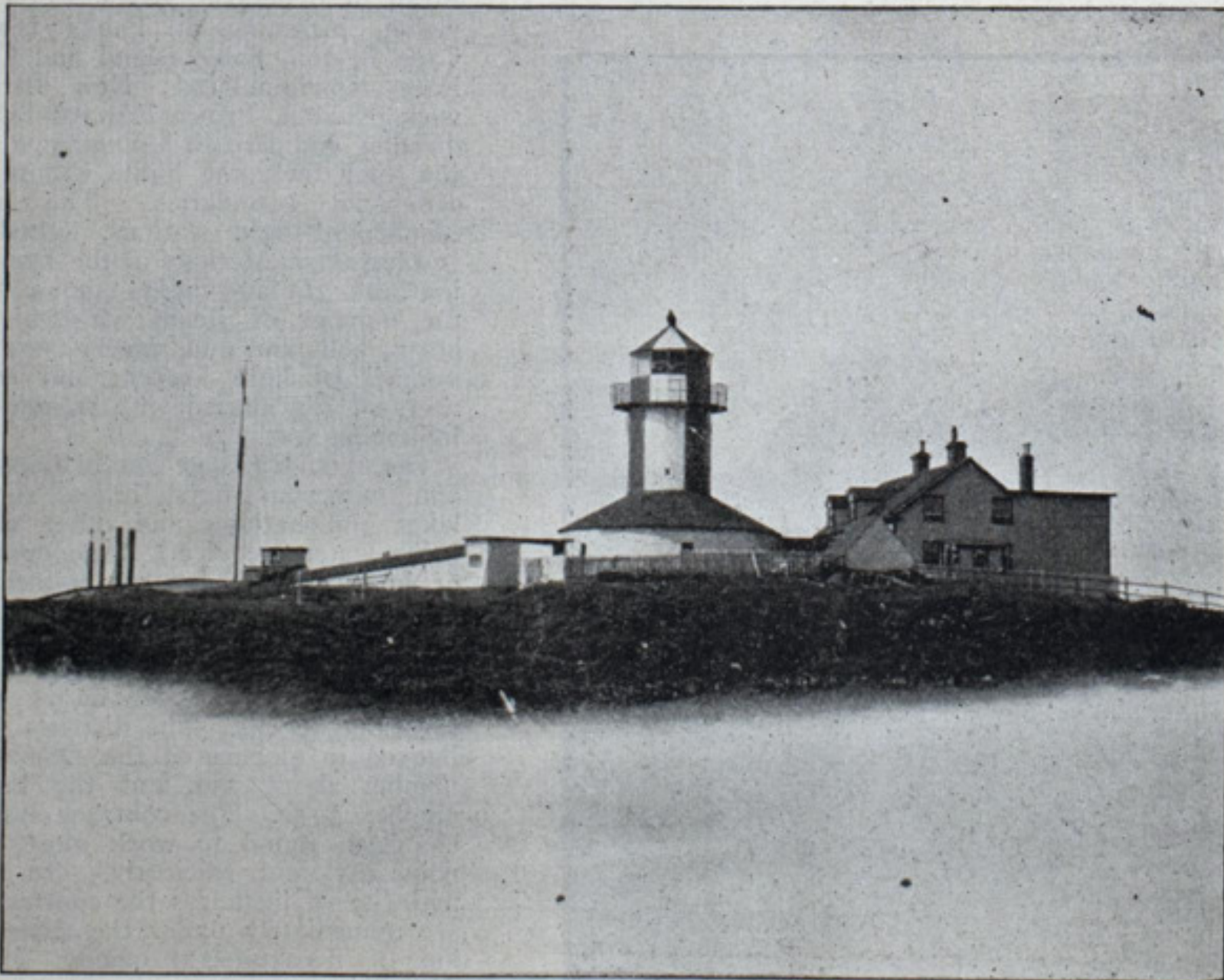


Northeast Point, St. Paul Island Lighthouse.

number of whistling, bell and other iron buoys are maintained along the coasts of the several provinces by Dominion steamers, particularly the Nova Scotia, New Brunswick and British Columbia coasts. The cost of this maintenance by the steamers is not charged directly to the buoy service but is included in the cost of maintenance of the steamers, which frequently perform the double service of attending to lighthouses and the coast buoy service on the same trip.

In addition to the buoys marking dangers, forty-two gas buoys are maintained showing lights, twelve in the Quebec agency on the St. Lawrence river, twenty-five between Montreal and Prescott on the St. Lawrence river, one in Pelee passage, Lake Erie, one at the mouth of the Detroit river and three in Parry sound. The coast buoys maintained by Dominion steamers on the coast of Nova Scotia consist of twenty-three automatic whistling buoys, eighteen bell buoys and 128 steel can and conical. In the New Brunswick agency there are maintained in the same way sixteen signal buoys, fifteen steel can and conical

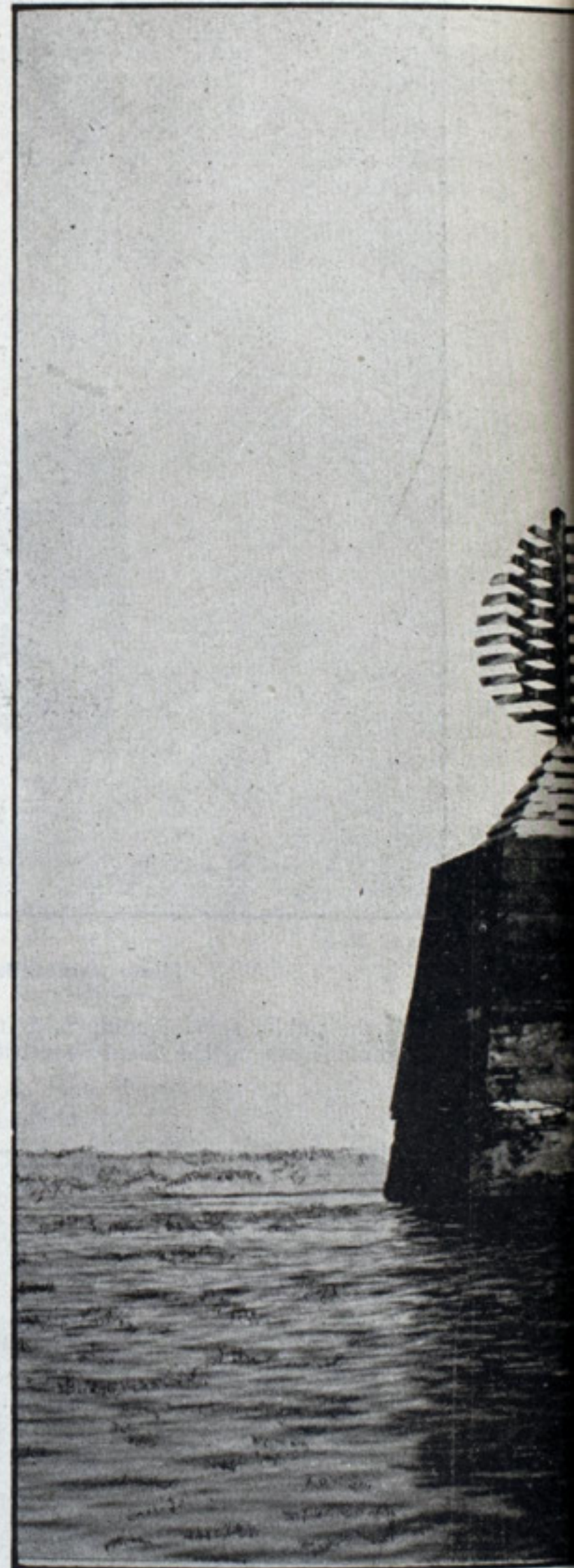
TYPES OF CANADIAN



Cape Race, Newfoundland, Lighthouse and Fog Alarm.

buoys and one bell boat. The signal coast buoys of Prince Edward island number three. Two conical buoys are also to be added.

In the province of Quebec under the Quebec agency one whistling buoy was established at Manicougan and one bell buoy at Matane. A large number of can and conical buoys are maintained by dominion steamers on the St. Lawrence river between Montreal and Quebec and also below Quebec. The steamer Shamrock is constantly employed in the buoy service on the St. Lawrence river between Montreal and Quebec,



Gabriola Reef B

and the Scout renders similar service between Montreal and Prescott, attending also to the gas buoys above Montreal on the St. Lawrence. The new Dominion steamer Druid performs the buoy service below Quebec and attends the gas buoys in the Quebec district. The coast buoy service in British Columbia is performed by the Dominion steamer Quadra. The service at the mouth of the Fraser river is performed by the public works steamer Samson, employed by the department of

marine and fisheries.

The hydrographic survey of the Canadian shores of the great lakes has made good progress during the past season. Mr. Stewart of the steamer Bayfield began the survey of Lake Superior, taking up the work at Coppermine point, the northern limit of the survey of Whitefish bay by the United States corps of engineers, and completed a thorough examination of the water off the shore as far north as Cap. Gargantua. One very dangerous and hitherto unknown shoal was found lying $1\frac{3}{4}$ miles west of Leach island,



Grand Harbor, N. B., Lighthouse.

AIDS TO NAVIGATION.

below the Traverse could be better referred to Father point than to Quebec. The tidal record from Father point is therefore being submitted to an analysis which will enable tide tables to be calculated directly for that locality. Until now these tide tables have been deduced from Quebec tables by an elaborate method devised to save the expense of analysis at an additional station, but it has become apparent that a direct calculation will enable the turn of strong tidal St. Lawrence currents to be more correctly known as their relation to the time of the tide itself is already ascertained. In this report all the information yet obtained is summarized regarding the tide and current in Northumberland strait and the laws which govern the movement of the current are given. From observations taken at Pictou island, the time at which the current turns is found to vary with relation to the moon's declination, which has proved to be the ruling element in this region. This is very confusing to the mariner, as the turn of the current is thus out of accord with the moon's phases and has no fixed relation to the spring and neap



West Point, Anticosti, Lighthouse.

with only 14 ft. of water over it. The shoal off Corbay point was examined and described; also a large uncharted bank lying south of Montreal island and Mica shoal.

Concerning the survey of tides and currents, Lieut. Col. William P. Anderson, chief of engineers, says:

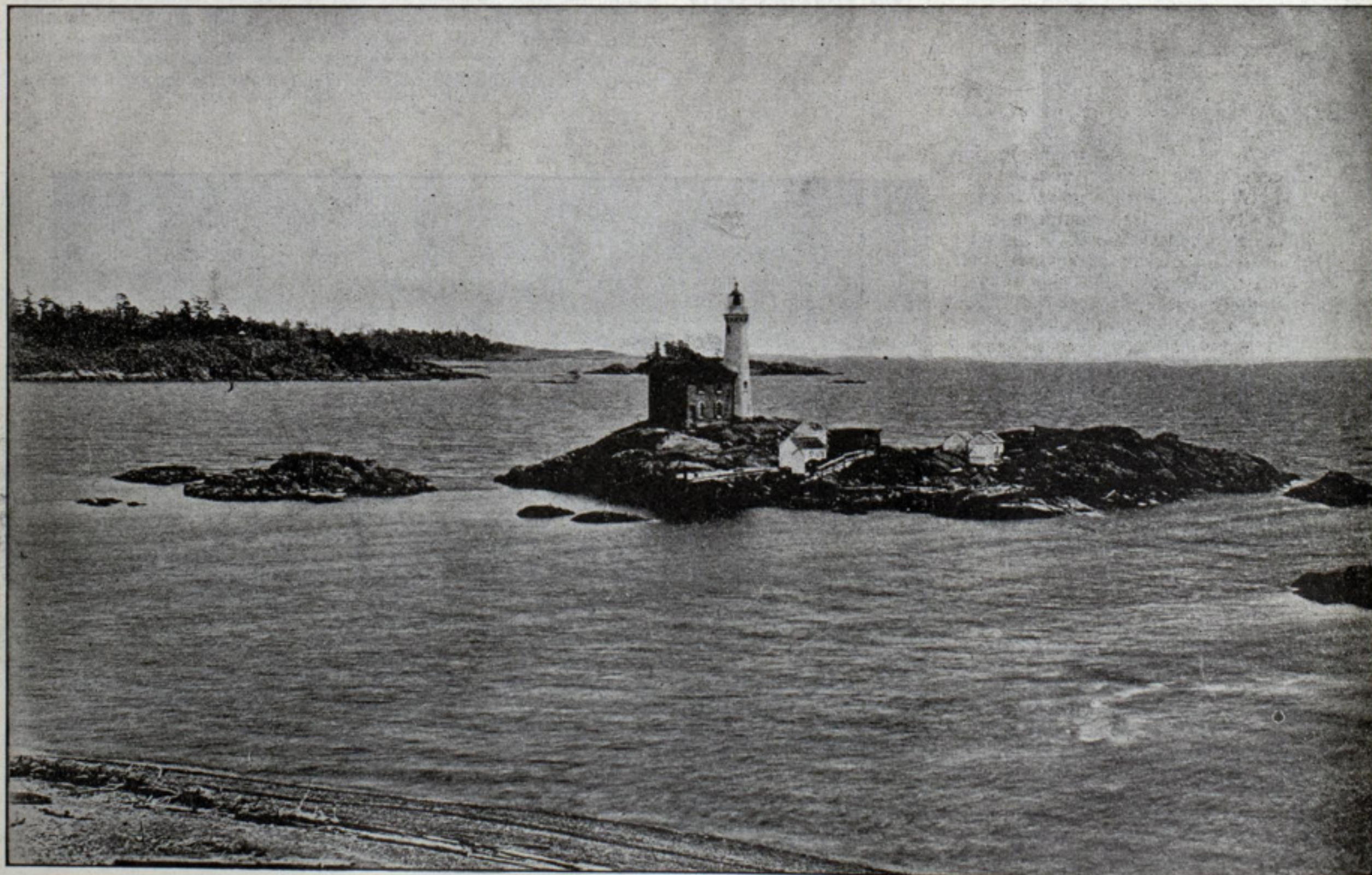
"An important step may be noted as an aid to navigation on the St. Lawrence route. The tidal observations throughout the St. Lawrence in 1900 make it evident that both tide and current in the open estuary



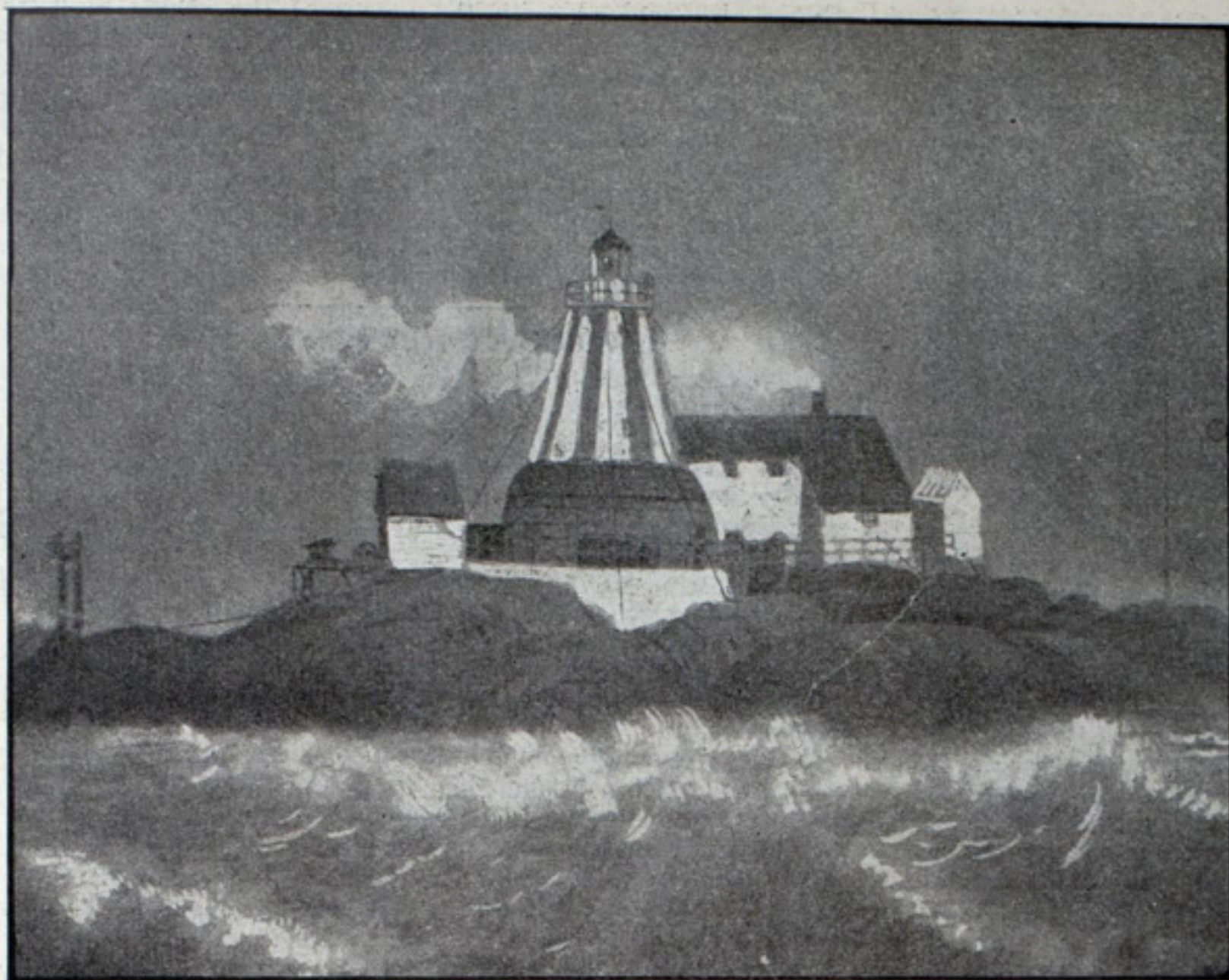
Ice in Straits of Northumberland.

tides. The ordinary navigator takes refuge in the conclusion that the currents are chiefly influenced by the wind. But their movement is in reality reduceable to astronomical laws, although these are complicated in their character. Further observations

of the current in this strait were obtained at Cape Traverse from the movement of the ice and from fishing boats which anchor in mid-strait. The relation between the turn of the current and the time of the tide is found to be most consistent when the principal



Fisgard Lighthouse, B. C.



Gannet Rock Lighthouse, Bay of Fundy.

tidal station at St. Paul's island is taken for reference rather than Pictou in the strait itself.

"On the Pacific coast good progress has been made, both in the improvement of the tide tables through an analysis of further tidal records from the principal stations and also in the establishment of additional tidal stations to extend the information available. The stations for which the tide tables are primarily calculated are Victoria and Sand Heads in the Strait of Georgia and the results deduced from these are much better than can be obtained from comparisons with Port Townsend, as given in the tide tables of the United States coast survey. The reason for this is the difference in the character of type of the tide. Five summer tidal stations were erected this season with the object of obtaining tidal data as a basis for the investigation of the currents at the entrance to the Bay of Fundy and also in the bays of the south coast of Newfoundland."

Concerning aids to navigation in general Lieut. Col. Anderson says:

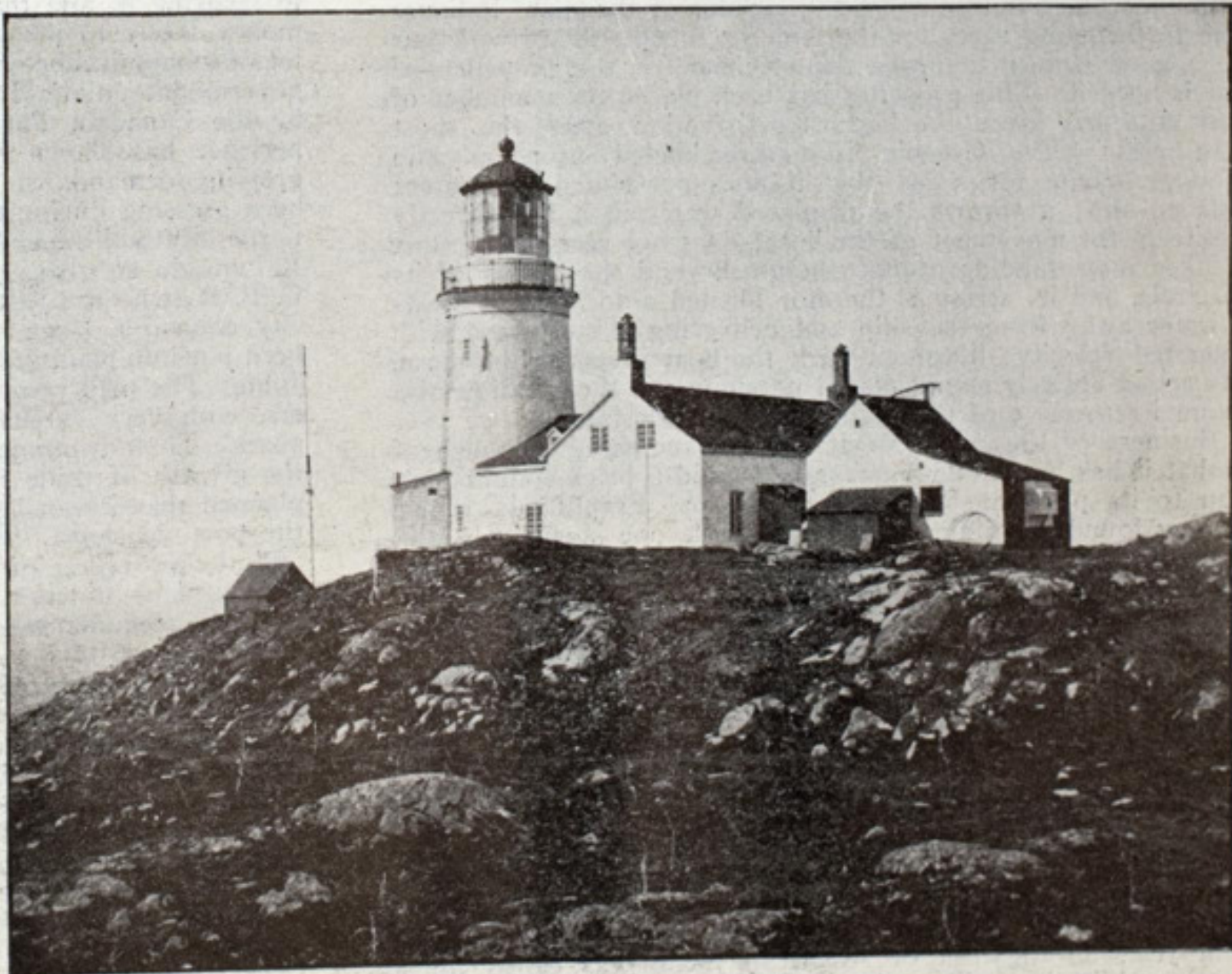
"We meet with a good deal of difficulty and disappointment in operating our fog signals. This is because we cannot make mariners understand that sound signals are extremely liable to aerial disturbance. Theoretically, sound waves are propagated in straight lines in all directions from their source, exactly as light waves are propagated. Practically these straight lines of sound waves are deflected by any little irregularity in the air through which they pass. If the air is not wholly homogeneous the sound waves will not pass through it in straight lines but will be deflected, and whether the deflection is down towards the surface of the water or up into the air the effect is the same; the sound does not travel parallel to the surface of the sea and is lost to the sailor who is listening for it. A small island, a reed, or rocks, or even a shoal lying outside of a fog alarm station will have the effect of unequally heating the air which covers them, and the air thus separated into strata of unequal densities, causes refraction of the waves of sound, and the fog alarm becomes ineffective. The same thing may happen, though it is not so likely to do so, where none of these natural obstructions is apparent. Times without number complaint has been made that one of our fog alarms was not in operation, when investigation proved that it was sounding as loudly as ever, the trouble being with atmospheric conditions. For these reasons we warn mariners that they must never judge their distance from a fog sig-

nal, either by the power of the sound or by the absence of sound, because under certain conditions of atmosphere the sound may be heard loudly at long distances from the alarm; under other conditions it may be lost at a very short distance, and these conditions may vary at the same station within very short intervals of time or of space. Unfortunately it seems impossible to convince captains of this, and many wrecks have resulted from their ignorance of these well-known aberrations.

"Danger signals that have been greatly improved in later years are floating aids to navigation, including lightships and buoys. The modern lightship is a reservoir of complicated machinery, containing apparatus for revolving lights at the mast-head; powerful fog signal machinery; auxiliary power for propelling the vessel in case she breaks away from her moorings or is obliged to run for shelter, and mechanical appliances for relieving the strain on the anchor in heavy weather. A lightship, however, can in no way be considered as satisfactory an aid to navigation as a solidly-founded lighthouse because the motion of the waves prevents the light from being seen at a great distance, and in our climate a vessel must leave her station when ice forms, and is, therefore, unavailable at the time navigation is closing, when an aid is most urgently required; moreover she is

liable at any time to break from her moorings, and may therefore not be found at the place expected. The one point in favor of a lightship is that her station may be so located that vessels can run much closer to her than they can to a light on the land.

"In 1899 there was an international convention on the subject of buoyage, which resulted in the adoption of rules to govern the shapes and colors of buoys. Canada has adopted these international regulations, and all our larger buoys have been made to conform in shape as well as in color to these international regulations. To make the necessary improvements involved the furnishing of a large number of conical buoys. The



Belle Isle High Lighthouse.

ingenuity that has been shown in the development of signal buoys is most interesting. The earliest signal buoy is the old bell buoy. I doubt if it has been much improved since the eighteenth century. The Courtenay whistling buoy is a most successful, ingenious and original invention. It is fitted with a long cylinder reaching down into the sea below the wave action. As the buoy rises and falls on the water this cylinder acts as an air compressor, the compressed air being forced out through a large whistle on the superstructure, and emitting a fitful and dis-

tinctive moan. We have now in the Dominion over thirty of these buoys and are rapidly adding to the number.

"Another very successful and original buoy is the Pintsch gas-lighted buoy, in which a specially-purified gas is compressed to 10 or 12 atmospheres and supplied to a group of burners through a reducing valve so gradually that a large buoy will burn night and day for three months without attention. An ingenious invention in connection with this buoy is an automatic cut-off that withdraws the supply of gas at short intervals so as to give the effect of an occulting light. This result is secured by alternately filling and emptying a chamber capped with a piece of flexible leather and owes its success to the extreme simplicity of the mechanism. With this attachment there are three burners, which are extinguished, grouped about a small pilot burner, not affected by the cut-off, and which relights the outer jets as often as the gas resumes its flow. Pintsch gas is largely used for lighting cars. This gas is also used in many small beacon lights."

PHILADELPHIA TRADE NOTES.

Philadelphia, Pa., May 27.—The large plant of the Williamson Bros. Co., Arimingo avenue and Cumberland street, is busy in all its departments. This company furnished the evaporators, ash-hoisting engines and the steam and electric gearing for the immense steamship Minnesota, launched at New London, Conn., recently for the Great Northern Steamship Co. The Williamson Bros. Co. will also furnish similar equipment for the Dakota, a twin ship to the Minnesota, now on the stocks at the New London works. From other sources it was learned that the floor plates of the Minnesota were furnished through the American Pressed Steel Co.'s Philadelphia office and that the Admiral Anchor Co. of Chester, Pa., furnished the vessel's patent stockless anchors.

The Lozier Motor Co. of Plattsburg, N. Y., has an excellent exhibit of gasoline motors and launches in the machinery department of the Philadelphia Bourse.

The France Packing Co., Inc., of Tacony, Philadelphia, now has seven branch offices in as many different cities. It is reported that the demand for this company's metallic stuffing-box packing has steadily increased, orders coming from ship yards as well as from numerous other large manufacturing concerns.

Alfred Box & Co. of this city have been awarded the contract for furnishing one of their 12-ton electric cranes for the United States mint at Denver, Colo. Testimonials have been received by the firm from a number of vessel owners, all telling of the merits of special cranes in use on shipboard. They occupy small space and are convenient and reliable.

President G. Weaver Loper of the American Steam & Sail Chartering Co., Ltd., this city is especially pleased just now with success attending the sale of the Cyconic propeller. "We have furnished," he says, "one of our propellers to the Satellite; formerly the Diamond State of the Delaware River Navigation Co.'s fleet. The Satellite will be the tender of the yacht Reliance in the forthcoming races for the America's cup and we will thus have a good chance to prove the efficiency of the propeller—if proof is needed. This propeller has been placed on a number of vessels and has given the best of satisfaction after the most severe tests." The Cyconic is a three-bladed propeller and advantages claim for it are that it does not churn the water; it has no slip; it throws the displaced water in a line directly opposite to the movement of the boat; does not race at the start but takes instant hold; cannot operate beyond the radius of its own circle, and its action is therefor likened unto a pump drawing water away from the ship and delivering it sternward with accelerated velocity; it cannot suck the boat down at the stern, as its action entirely eliminates all possibility of the creation of a vacuum irrespective of the high revolutions desired.

Business of the Ajax Metal Co. has increased so much of late that it has been found necessary to add a brick foundry addition to its plant at Richmond street and Frankford avenue. The new foundry building will be of brick, one story in height, 80.7 by 151 ft. in dimensions. Bids for the work on the new edifice are due May 29.

The Cleveland Punch & Shear Works Co. and the Acme Machine Co. (bolt and nut machinery) of Cleveland have excellent exhibits of their products in the machinery department of the Philadelphia Bourse. J. W. Cregar is Philadelphia representative for both companies.

LLOYD'S REGISTER OF AMERICAN YACHTS.

A yacht register has for many years been published by the committee of Lloyd's Register of Shipping in England in which particulars of yachts and yacht clubs of the United States and Canada have appeared. The large and rapid increase in recent years in the fleet of American yachts has called for a separate publication, and at the suggestion of some gentlemen of prominence in yachting circles the present work, which has been compiled and printed in the United States, has been issued. The book contains particulars of 850 steam and power yachts, and 1,939 sail yachts, or a total of 2,789 yachts, all of which are owned in the United States or Canada. The addresses, clubs and yachts of upwards of 2,500 owners are given in a separate list arranged alphabetically according to the names of the owners. There are illustrations in colors of the flags of ninety-four American and Canadian yacht clubs with the names of their officers in the book and of 1,073 private signals of yacht owners.

A list of the yacht builders and designers of the United

States also appears, with the names of the yachts built or designed by them, and lists of signal letters, and of the late names of yachts. Particulars of the classification of those American yachts which are classed by Lloyd's register committee are given in the book, and in this connection it may be mentioned that the society's rules for the building and classification of yachts have recently been completely revised, and will shortly be ready for publication. The subscription to the American yacht register is \$7.50. Applications for the book should be addressed to Lloyd's Register of Shipping, 15 Whitehall street, New York.

WORK AT NEWPORT NEWS.

Newport News, Va., May 27.—The battleship Texas was docked at the ship yard last week and cleaned and painted. She is now out of the dock and will leave this week for northern waters. The battleship Illinois is expected here next week to go in dry dock. She will afterwards join the battleship squadron. The German cruiser Gazelle will sail from here about June 4 for southern waters to join the Vineta and Falke. She has been here the past four months receiving a general overhauling. It is reported that the Falke will follow her for an overhauling. The Old Dominion liner Monroe, which returned to the yard for alterations, has resumed her route between New York and Virginia ports, having been altered in order to reduce her top weight.

The new cruiser Galveston, which was started at the Trigg ship yard, Richmond, and must be completed at the navy yard over at Portsmouth, will be launched in about a month and will be towed down the river to the navy yard. A board of naval officers is now at Richmond perfecting the plans for the launching. The schooner Charles L. Davenport, which went ashore at Old Point and had a large hole punched in her bottom by the rocks, is now in dry dock at the ship yard, having been floated several days ago. The Davenport is a large four-master. The Clyde line will after June 1 send its steamers to Newport News, making this a port of call as well as Norfolk.

The armored cruiser Maryland, sister of the West Virginia, which was launched April 18, will probably not go overboard at the ship yard until early in September. The Maryland is now as far advanced as the West Virginia was when launched, but the ship yard has found that considerable work can be done while the ship is still on the ways more economically than after she is in the water and the condition of other work around the yard makes it unnecessary to hurry the Maryland.

ST. JOHN AND THE TRANSATLANTIC TRADE.

The St. John, New Brunswick, people are very much alive to the advantages which will accrue to the harbor on the Atlantic which is selected as the terminal for the transatlantic steamship line, but they appear to lack one necessary essential to securing it, and that is the determination to spend their own money freely to provide all the terminal facilities required. A lot of money has been expended by the city and by the Dominion government on the Intercolonial railway terminal facilities, and by the Canadian Pacific Ry. on its terminal facilities, but experience has shown that these are not sufficient to meet the growing demands of the trade. The C. P. R. authorities have been pressing during the past winter for increased facilities, and if the city will expend money freely on improvements, the C. P. R. will do so also. J. Osborne, general superintendent of the C. P. R., who has just left St. John for Montreal, outlined to the city council a large scheme of harbor improvement, which has been put into plain form by J. H. Barber, C. P. R. engineer at St. John. The plan provides for berths for thirty additional steamers, with very extensive yard accommodation for railway purposes. The advantage of this proposal is that it will provide for the growth of trade for the next twenty years or so and is so planned that it can be carried out in sections as the business of the port develops. There is no sentiment about the C. P. R., and the provision of a fast line of steamers is no part of its future plans unless the Dominion is prepared to come down with an adequate subsidy, and this parliament, as yet, does not seem disposed to do. If the St. John people will do their part in the development of their harbor the C. P. R. will give them every aid, but if they will not do what is necessary, then the C. P. R. will look out for a port where they can have what they require and are not handicapped by having a lot of local interests to consider. St. John may be the national port for transatlantic trade in the Dominion, but there is a danger that local influences in the city and the jealousy of other ports on the Atlantic coast may drive the C. P. R. elsewhere, and Canada will never have an all-the-year-round port that will stand in the same relation to the country as Liverpool or Glasgow does to Great Britain.

The new Pacific Mail liner Siberia was docked last week in the new dry dock of the San Francisco Dry Dock Co., Hunter's Point, Cal. Notwithstanding the fact that the Siberia's length is 550 ft. there was still room left in the dock to accommodate a small vessel. The San Francisco Dry Dock Co. has therefore well anticipated the needs of Pacific commerce.

The Wilmington Transportation Co., Avalon, Cal. has given an order to the Banning ship yard at Mormon Island, Cal., for a steamer of the following dimensions: Length over all, 190 ft.; beam, 32 ft.; depth of hold, 15 ft. 6 in.

AGAINST THE 1,000-TON BARGE CANAL.

The agitation against the 1,000-ton barge canal goes on apace. Every effort is being made by a variety of interests to convince the electors of the state of New York that the enlargement of the canal is monumental folly. Now it is the senators who voted against the bill who have issued a circular. They say that their opposition is not based upon sectional or local hostility to the canals but what they believe would be the evils and misfortunes to the whole state which would result from the measure. They are determined, they say, that "clamor from powerful interests in New York and Buffalo shall not swerve them from their plain duty." Much of this clamor, they say, comes from interests in those cities which have by their exactions and overcharges for docks, elevators and other terminal facilities enriched themselves at the public expense while directly contributing to the decline of canal commerce since 1880. Now these interests seek to have the state enlarge the field of their operations and to preserve the source of their gains, regardless of public expense. The senators deny that there is any condition or emergency in the development of the great commercial centers, or any lesson to be learned from their history, which would justify the levying of taxes upon the property of the state, or the incurring of a state indebtedness for the initial expenditure of \$101,000,000. If the welfare of the state be viewed as wholly bound up in the highest possible rate of increase in the population and wealth of the two cities, they fail to see how the projectors of the new canal can expect a growth in either much in excess of the past and present rate.

The population and assessed valuation of New York and Erie county for the past eighty years is given, and the conclusion drawn that in eighty years the population of the state has been readjusted so that two towns of very moderate relative importance to the rest of the state now have approximately one-half of the population and two-thirds of the wealth of the entire state. The growth of both New York city and Buffalo has been and continues relatively greater than that of Boston, Philadelphia or Baltimore, New York's commercial rivals on the Atlantic seaboard.

While much of the state's earlier prosperity is doubtless attributable to the canals, their history for many years reveals a record of inconsiderable importance in the vast commercial development of the times. While it can be readily appreciated what an important factor a tonnage of 1,635,089 tons on the Erie canal was in 1850 to the city of New York, with a population of 650,000, and to the city of Buffalo, with a population of 40,000, when the modern railroad was unknown it can as easily be seen how small a factor in their commercial life, with their population increased six-fold, was the tonnage of 2,105,876 tons in 1902, it being less than two-thirds of the tonnage of the canal in 1872 (3,562,560 tons). The latter growth of these cities has not been dependent upon and has not been checked by the decadence of the canal.

If the policy of the state requires the expenditure of the state's moneys for the purpose of creating facilities for transporting freight in competition with the existing railroads, why would it not be better for the state to construct a four-track railroad from Buffalo to Albany, along the present route of the Erie canal? Competent engineers have asserted, and the statement has never been contradicted, that such a railroad could be constructed for a much smaller sum than it is proposed to expend in the construction of the barge canal. It is also unquestionably true that the annual charge for maintenance of such a railroad would be smaller than the probable charge for canal maintenance. As the United States has now for many years had the greatest commercial development of any country, and New York state the greatest commercial development of any state, it would be well for us to pause before attempting to improve conditions acknowledged to be the best in the world, at a cost so heavy that it may seriously handicap the general welfare. There is the highest degree of probability that the estimates are too low; that great engineering works not included in the plan will be rendered necessary by unexpected contingencies in connection with supplying the canal with water, and in confining the water within its banks; that there will be large and unexpected damages to private interests which the state must pay. If carried through the enterprise is sure to injure the laboring population now employed to the utmost, and to bring either under the law, or in spite of the law, tens of thousands of foreign laborers of the lowest type, who will remain when the work is done, a drag on our civilization and a menace to our native workers.

In many sections of the state, the canals are now drawing from our lakes and streams a supply of water sorely needed for manufacturing and municipal uses. If enlarged according to proposed plans, the supply for the canal must be indefinitely increased at the immediate and direct loss, not only to individuals, but to counties, cities and towns whose growth and development may be retarded, if not destroyed. The state is now defraying the expenses of government without a direct tax levy. If this proposition is adopted, that policy may as well be openly abandoned; and whether abandoned or not, the great expenditures incident to building the canal will indefinitely postpone the realization of the beneficent policy of the state, regardless of party, in building, good roads completing the acquisition of the state's forest parks, adequately providing for the state's charities, and improving our educational system.

Why should New York state expend \$200,000,000 in a doubtful experiment to bring the products of the farms and factories

and forests of the great northwest to the seaboard for a dime less per ton than they are now transported? Such a public improvement should be undertaken, if at all, by the federal government at national and not state expense. If undertaken, it should never be a 1,000-ton barge canal which cannot carry vessels fit for either the great lakes or the sea, but a ship-canal from Lake Ontario to the Hudson river.

The circular is signed by John Raines, Elon R. Brown, Merton E. Lewis, Jotham P. Allds, Henry S. Ambler, William W. Armstrong, Walter L. Brown, William D. Barnes, James B. McEwan, Albert T. Fancher, Frank J. Lefevre, George R. Malby, Franklin D. Sherwood, Edwin C. Stewart, Benjamin Wilcox and Frederick C. Stevens.

NAVY TWENTY YEARS AGO AND NOW.

Secretary W. H. Moody of the navy department says that a few simple statements of fact serve to indicate, though not to describe fully, the contrast between the navy of twenty years ago and the navy of today. Then there were sixty-six serviceable ships of all kinds with a tonnage of 134,596. Now there are 109 ships with a tonnage of 461,539. Then there were no vessels under construction; now there are thirty-eight. In addition the last naval appropriation bill authorizes the construction of three sailing training ships and five battleships besides submarines at the discretion of the secretary. Then the ships carried 441 guns, largely of the smooth bore, muzzle-loading type, and of them it was said in the report of the house committee on naval affairs of the year before:

"We have not one high-power, long-range, rifled, breech-loading cannon afloat in the navy, and it may as well be said here that we have not one to put afloat."

Now our ships carry 707 guns, all modern, high-powered, breech-loading rifles. Even the ships which we had then, through changes in the conditions of naval warfare, have become practically useless as war vessels. Now those of our ships which are designed for actual battle are believed to be the equal in power of any vessel in the navies of the world.

In the report Secretary Moody referred to, written by Mr. Harris of Massachusetts, it was said:

"We confessedly are helpless to defend our shores and great commercial centers against the attack of the smallest nation of the earth which may have had the courage and the wisdom to buy and to fit out an ironclad vessel of war effectively armed."

Secretary Moody says we may leave the present condition of the navy with the remark that it has met the supreme test of war. In 1883 there were 1,227 engineers and officers of the line. In 1903 there are but 1,023 such officers. In 1883 young men educated at the naval academy were being discharged and sent into civil life. In 1903 congress doubled the number of students under instruction at Annapolis. In 1883 the enlisted men of the navy numbered 7,776. In 1903 they number 28,270, gathered not now, as then, from the seacoast alone but from all the states of the union. They are well trained, well fed, well treated and, in the main, fine specimens of American manhood.

In judging of the demands which are today finding a ready response from the officers in the service let it be remembered that, while in 1883 1,227 officers had the responsibility for 7,776 enlisted men and thirty-six comparatively unimportant ships in commission, now 1,023 officers have the responsibility for 28,270 enlisted men and 110 ships of the most important and powerful types.

The points of contrast between the navy of that day and this might be multiplied if limits would permit. It would be agreeable also to speak of the many common features of the navy of these two periods, but Secretary Moody contents himself with saying that in 1903, as in 1883, we are at peace with the world, and the friendly relations which we have established with all nations bid us hope and believe that peace may continue and abide with us.

WORK AT MARYLAND STEEL CO.'S WORKS.

The Maryland Steel Co., Sparrow's Point, Md., has just received an order for a powerful seagoing tug for the Philadelphia & Reading Railway. The company last week delivered to the owners the side-wheel steamer Virginia and have the Atlantic Transport steamer Maine about ready to turn over to the International Mercantile Marine Co. The Maine's sister, Missouri, is nearly ready to launch, and the railway tug Crisfield is well in frame. The Merchants & Miners Transportation Co.'s steamer Gloucester has just left with new boilers and the steamer Hudson of the same line is now at the yard for new boilers and a general overhaul. Late the steamer D. H. Miller of the Merchants & Miners' fleet will go to the yard to be lengthened 30 ft. and to receive new boilers and cylinders. The two large dredges working in New York harbor, and which were built at the Sparrow's Point Works, are each to receive an additional boiler.

In spite of the much-talked of superabundant supply of undigested securities in the New York and London markets, there is apparently an immense amount of capital awaiting investment when the issue is attractive. The £35,000,000 Transvaal loan, guaranteed by the English exchequer, was thirty times oversubscribed, the applications for allotments actually reaching the sum of £1,000,000,000. Subscriptions for £1,000 or less covered the total amount of the bonds, a rare instance of avidity to secure an investment.

AS VIEWED FROM THE BATTERY.

The weather in New York having been so uncomfortably hot of late it was at first regarded as a joke when someone, entering a shipping office, called out: "I need a crew to go to the north pole." No sooner had it been ascertained that this was a bona-fide offer for transportation to a place where refrigerators are not needed, and where ice is free, when the agent was besieged by eager applicants who clamored for an opportunity to leave this sweltering city. One of the sailors hired on this occasion said that he had signed for a period not to exceed three years; wages \$40 per month; \$10 in advance; a free passage to Tromsø, Norway, and to be furnished with a complete outfit of clothing suitable for wearing in these northern seas. The agent further gave the information that he acted for the Ziegler polar expedition and that his employers would pay \$1,000 above what they may have earned at the termination of the voyage to each member of the crew should their ship succeed in advancing farther north than any of their rivals. The name of the vessel, which is said to be at present in Norway, could not be learned.

As we cannot all go hunting for the north pole it is good to be able to find comparatively cool spots in this city, and of the numerous so-called breathing-spots none is so deservedly popular as Battery park. Here a view may be had of what Americans fondly believe to be the busiest harbor in the world. A large French mail boat with two red smoke stacks is outward bound, and dips her flag when abreast of Governor's island, but it is too hot, and the American colors remain undisturbed on the fort, so that the Frenchman might be better employed in clearing his house flag that has fouled round the main truck. A German passenger boat, sporting three yellow smokestacks—must be one of the Bremen boats—follows in the Frenchman's wake, and the Battery park loungers predict a race when the boats shall have passed Sandy Hook, with heavy odds on the German.

The monotonous shouting heard at short intervals emanates from a gentleman standing near the Battery landing pier, and who is anxious to have it known that every hour a boat leaves there to take passengers to Bedloe's island. Waving his hands, between the fingers of which he has stuck bunches of dollar bills, invitingly, said gentleman adds as an inducement to make the trip that passengers will be allowed to climb up in the statue, from the top of which a fine view may be had of the harbor. Incidentally it may be mentioned that, taking the height of said statue into consideration, and also that the sun has been beating on it all day, by the time visitors reach the top they are hardly in a fit condition, either mentally or physically, to appreciate the

beauty of the scenery as displayed when gazing through the eyes of the Goddess of Liberty. Fare 25 cents.

But, here comes a more attractive proposition. The side-wheeler now taking the Bedloe island boat's place is prepared to take a crowd to the fishing grounds. "Deep sea fishing, gentlemen," and with a flourish of his arm which gives one the impression that the boat will go to Newfoundland at least, the knight of the money-decorated hands adds: "Away out to sea; one dollar only, with a fish dinner thrown in, free gratis, and for nothing at all."

The John G. Carlisle, leased by the immigrant bureau, makes a landing at the barge office while a crowd of people rush to the gates to welcome her load of embryo citizens. It is here the extremes meet; the Carlisle is still discharging her load of abjectly poor human beings when a long—a lounge compared her with a yard of pump water—white-painted steam yacht sends a boat ashore at the dock department float, and, after picking up a solitary passenger, proceeds up the North river at the rate of not less than 20 miles an hour.

"That's Gould's ferry," volunteers a Battery park frequenter.

What's in a name, or a word?

It has now been asserted that the tugboat engineers in New York harbor did not strike—they resigned simultaneously. The outcome of this strike—no, of this simultaneous resigning—depends very much on the result of an appeal to the federal government to revoke the licenses of the engineers who did not carry out their obligations, according to the provisions of which their licenses were granted. The railroad companies using towboats in their service by giving in to the demands of their engineers showed themselves conversant with the inside history of this most unique of strikes. Roughly estimated there are 4,000 license holders in New York harbor and vicinity, of whom three-quarters are members of the union. Their former president, Mr. Uhler, to whose clever management the engineers attribute their complete organization, is at present the head of the steamship inspection service, and it is only through him, through Mr. Uhler, the father of their union that licenses can be revoked. The railroad, as said before, gave in, but about half of the fleet of independent tugboats is tied up until some one finds a way to untie that guerdon knot—Uhler, ex-president of the union, now the man who controls the engineers' license supply.

Colonists and homeseekers' excursion rates to west, northwest and southwest by way of the Nickel Plate road. Call on nearest agent, or E. A. Akers, C. P. & T. A., Cleveland, O.

69 June 12

BELLEVILLE WATER-TUBE BOILERS

NOW IN USE (FEBRUARY, 1903)

On Board Sea-going Vessels, NOT INCLUDING New Installations Building or Erecting.

French Navy	-	-	-	-	-	-	-	-	276,460 H. P.
English Royal Navy	-	-	-	-	-	-	-	-	849,300 "
Russian Imperial Navy	-	-	-	-	-	-	-	-	193,900 "
Japanese Imperial Navy	-	-	-	-	-	-	-	-	122,700 "
Austrian Imperial Navy	-	-	-	-	-	-	-	-	32,900 "
Italian Royal Navy	-	-	-	-	-	-	-	-	13,500 "
Chilian Navy	-	-	-	-	-	-	-	-	26,500 "
Argentine Navy	-	-	-	-	-	-	-	-	13,000 "
The "Messageries Maritimes" Company	-	-	-	-	-	-	-	-	87,600 "
Chemins de fer de l'Ouest: (The French Western Railway Co.)	-	-	-	-	-	-	-	-	18,500 "
plying between Dieppe and Newhaven	-	-	-	-	-	-	-	-	
Total Horse Power of Boilers in Use	-	-	-	-	-	-	-	-	1,634,360

WORKS: Ateliers et Chantiers de l'Ermitage, at Saint-Denis (Seine), France.

TELEGRAPHIC ADDRESS: Belleville, Saint-Denis-Sur-Seine.

ITEMS OF GENERAL INTEREST.

Last week the New England Ship Building Co., Bath, Me., launched the four-masted barge Hattie, belonging to the Baltimore & Boston Barge Co. Her dimensions are: Length, 230 ft.; beam, 39 ft.; depth, 17 ft. 3 in. She is intended for the coal trade.

Capt. J. C. Sanford, United States engineer, Witherspoon building, Philadelphia, advertises for bids for the construction of two large twin-screw suction dredges for use in New York harbor, the bids to be opened on June 30. Specifications may be obtained on application to Capt. Sanford.

A 52-ton nickel steel ingot, made by the Carbon Steel Co. of Pittsburg and referred to in our last issue, has been shipped to the works of the Fore River Ship & Engine Co., Quincy, Mass., there to be forged down under the Fore River Co.'s big hammer to a crank shaft for the battleship Rhode Island.

The Seawanhaka-Corinthian Yacht Club has, through the agency of Sadler, Perkins & Field, Maritime building, New York, chartered for the use of its members and friends during the America's cup races off Sandy Hook the New Bedford, Martha's Vineyard and Nantucket Steamboat Co.'s steamer Gay Head.

Lorena, an ocean-going turbine steam yacht of about 1,400 tons, built by Ramage & Ferguson of Leith for A. L. Barber of New York, ran her steam trials on the Firth of Forth last week. She attained a speed of 21.88 miles an hour. The Lorena is designed by Cox & King of London and is equipped with Parsons' turbines.

It is announced that the United States Steel Corporation has practically closed a contract with the Bessemer Association of western Pennsylvania and eastern Ohio for something like 100,000 tons of pig iron for delivery in the latter half of the current year. The bulk of the order is placed at \$18.50 per ton. Orders for additional amounts are shortly to be placed.

Usually silver services or figureheads are the gifts of cities to warships named after them. The city of Cleveland makes a departure in its gift to the cruiser Cleveland, now nearing completion at the Bath Iron Works, Bath, Me. The committee appointed by the Cleveland Chamber of Commerce to devise a gift for this vessel has selected a ship's bell. Of course it will be an elaborate and costly bell—about 2 ft. high and weighing

about 700 lbs. It will be suitably inscribed and engraved. It is likely that Perry's victory will be commemorated upon the bell by an engraving showing his departure from his burning flagship to the Niagara. The workmanship will be that of Adolph A. Weinman of New York.

The Nautical Gazette of New York has been sold by Mr. Samuel Ward Stanton to Crossett & Bates, Incorporated, of 156 Fifth ave. The first number of the paper under its new management will appear June 4, and will be changed to regulation size of 9x12 inch page. Mr. Stanton disposes of the paper for the reason that he intends removing to the south, but for the present will remain with the publication until the new owners and editors have things running smooth. Mr. W. H. Wiley, advertising manager of the Gazette, remains with the paper. Mr. Stanton has been a popular publisher and his many friends while regretting his retirement from marine journalism will wish him the best of health, happiness and success in his southern home.

Referring to progress of the American Association of Masters and Pilots of Steam Vessels in and around New York, Capt. Luther B. Dow, grand counsel of the association, says: "Our new offices at 21 State street, Battery Park building, New York City, have been fitted up in fine shape and we are very proud of them. They have elected me general manager. As announced recently, all the harbors in New York City, Brooklyn, Jersey City and Newark have been consolidated under the name United Harbor No. 1, with a membership of over 1,800. The general meeting room is in the Masonic Temple, Twenty-third street and Sixth avenue, New York City. We intend that all of our dealings with the vessel interests shall be based on business principles. If we have a grievance we intend to place the same before the vessel owners in a manly and honest way. We do not believe in strikes or harsh measures of any kind."

Tri-weekly tourist car service by way of the Nickel Plate road. Every comfort of modern train service is provided at very small cost. Berth rates less than half the price of regular Pullman service. Get particulars from nearest agent, or from E. A. Akers, C. P. & T. A., Cleveland, O. 66 June 12

Photographers

Attention!

THE MARINE REVIEW is desirous of obtaining at all times interesting photographs of a maritime character. Should an accident occur, should a ship be stranded, should an unusual repair job show up in a ship yard, the MARINE REVIEW will pay substantial sums of money for any such photographs. Many a man in a dry dock, in a ship yard or aboard ship has a camera. Possibly the master or the superintendent has one. If he can accompany the photograph with a written description (merely facts; we'll furnish sentences, spelling and punctuation), so much the better and so much the more profit for him. The REVIEW pays well for good news articles.

Undoubtedly hundreds of extraordinary repair jobs are going on which would interest naval architects and marine engineers, but which are never published because they are known only to those who are working upon them.

This invitation is open to everyone.

United Marine Mfg. & Supply Co.,

MANUFACTURERS OF AND
DEALERS IN

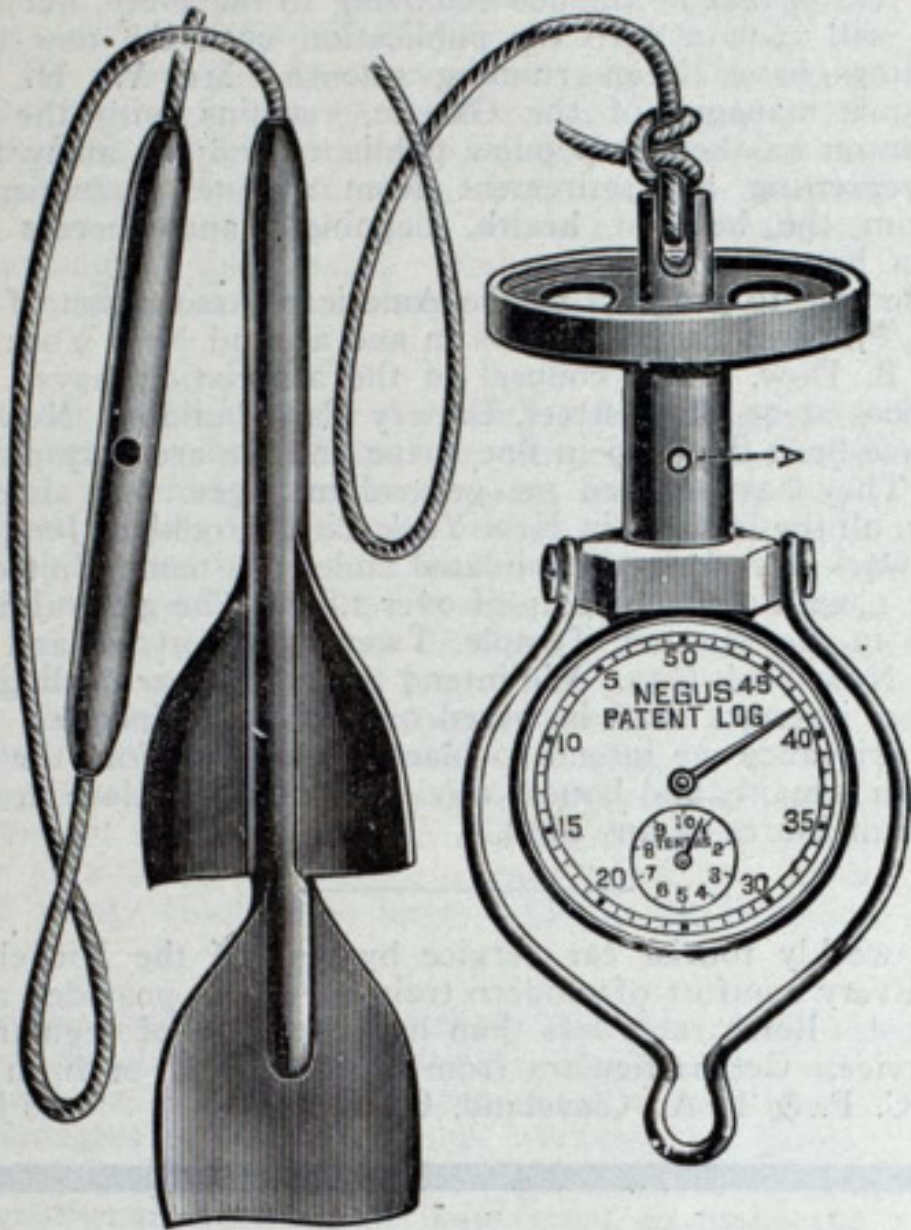
ELECTRICAL MATERIAL

ALBERT C. JAHL, General Manager,
100 William St., New York, U. S. A.

FOR SHIPS AND FORTIFICATIONS.

RELIABLE LOG FOR SMALL CRAFT.

There has long been a demand by owners of small craft for a reliable log for small craft, something that would be small, strong and accurate, and at the same time inexpensive. Owing to this demand, manifested by the many inquiries received for such an instrument by the well-known nautical instrument house of T. S. & J. D. Negus, 140 Water street, New York, they undertook the task of producing a taffrail log that would fill all the requirements. This, as they assured a representative of the Review, proved to be much more difficult than they had at first



imagined before their aim was attained. In fact it required months of thorough and exhaustive experimenting and testing, which was prosecuted even to the smallest detail, nothing being left to chance or supposition, before they were satisfied to place the instrument on the market.

The outcome of their efforts in this direction is the Negus improved patent log, an illustration of which is herewith given. The claims made for the superiority of this instrument over anything of the kind heretofore produced are compactness, strength, light pull, ability to register correctly at high or low speed, and last but not most important, accuracy. The instrument is made of the best material from indicator pointer to line and is fitted with double ball bearings, giving it great sensitiveness. Two rotators are made, one registering knots and the other statute miles, so as to provide for the wants of parties desiring either measurement, and it is sold at the moderate price of \$10, which places it within reach of all boat owners. Further information will be gladly furnished by the manufacturers.

STEERING SUBMARINE BOATS.

When the submarine boat was invented there was one element necessary to its successful operation that evidently was not properly reckoned with by its inventor, namely, the means with which to steer the craft from point to point, with any degree of accuracy, when running under water. As everyone knows the only means so far known to enable the voyager to guide his ship from point to point across the trackless waters is the mariner's compass, and those who are familiar with this delicate instrument know that it is possessed of more eccentricities than a Kansas politician. Had the inventor of the submarine looked into this phase of the subject he would probably have quit in disgust, as it is a well-known fact that a ship's compass is difficult to control on the ordinary steel hull of the present-day ship. What then might be expected of it when placed in a submarine boat, entirely surrounded by steel, submerged in the water, and brought into close contact with electric dynamos, batteries and charged wires. Under such circumstances it could not be expected to render much assistance to the helmsman in guiding his craft. In fact it was tried and found sadly wanting, seemed to become insane, wanted to point in every direction at once, and instead of guiding bewildered the helmsman.

This is not to be wondered at when it is borne in mind that besides the detrimental environments already cited there was the inclination of the boat to take a dive when descending and an altogether proneness to keep out of a horizontal position, which adds to the derangement of a compass. Then the location of the instrument on such a craft is not conducive to a compass's equanimity. It is located in a small steel tower not over 2 ft. in diameter, which space must also accommodate the helmsman, necessitating its being placed close against the steel forming the wall of the tower.

Under all these adverse and trying circumstances it is little wonder that the compass went crazy—as one pilot expressed it—

and that it would not work with any degree of accuracy, in fact proving to be about as useful to the helmsman as a lantern would be to a blind horse. Many skilled in compass doctoring undertook to apply a remedy. The nautical instrument house of T. S. & J. D. Negus, 140 Water street, New York, made a diagnosis of the case, applied a remedy and is understood to have worked a complete cure. How they did it remains their professional secret. By means of this Negus (2-in.) compass, fitted in a special binnacle, over a hundred successful tests under water are reported from submarine boats, one of the boats fitted with the compass having remained beneath the surface over three hours, being accurately guided from point to point, in various runs, by its aid. To adjust a compass so as to overcome the various influences detrimental to its proper working, to be encountered in such environments, not only displays a thorough knowledge of the mariner's compass with its many variations but is really a stroke of genius, and one on which the house of Negus is to be congratulated.

FREE ZONES IN FRENCH SEAPORTS.

M. Rouillot, French minister of commerce, deposited in the bureau of the chamber of deputies, a few days ago, another measure for encouragement of trade—a bill to establish free zones in the seaports of France. Chambers of commerce, commercial companies and syndicates have been agitating for the creation of free harbors for a number of years, on the ground that such a measure could not fail to greatly assist the development of French maritime trade. The example of Copenhagen, Hamburg and Genoa has been frequently quoted, and the growth of the shipping traffic of those ports has been attributed in great measure to the marking off of free zones. French ship owners and merchants therefore came to the conclusion a long time ago that a step of this nature would enable French over-sea commerce to contend more advantageously with the competition set up by rival nations.

The bill proposes to establish free zones, whereby the whole or a portion of a port is freed from the fiscal action of the customs authorities, whose duties, with respect to the free zone, will be limited to the surveillance of the exits from the enfranchised territory and to guarding against smuggling operations. The ports which are to benefit by this measure are not designated in the bill, but power is given to the government to make choice of the localities on the demand of chambers of commerce acting in accord with the municipal councils. When a port is once fixed on the chamber of commerce will be charged with the organization of the free zone, and for this purpose the chamber will either be put in possession by the government of the requisite quantity of ground, or it will obtain it by expropriation. The chamber will then have to separate this piece of ground from the territory under customs jurisdiction by means of artificial or natural barriers, and will also erect the necessary warehouses and depots. Within the space thus marked off, it will be lawful to execute all kinds of commercial operations, and certain industries may also be carried on to a limited extent. In order, however, to protect the interests of small tradesmen outside of the free zone, the bill provides that private persons shall neither reside, nor take their meals, nor keep retail shops within the zone, with certain indispensable reserves in favor of the people employed there. It is further provided that in order to get over the difficulties arising from the multiplicity of the customs tariffs, the "maximum tariff" shall be applied uniformly to all goods which may pass out of the free zone into non-enfranchised territory, and provision is also made for moderating the rigor of the customs regulations when the "origin" of the said goods is sufficiently proved. Within the limits of the free zone cargoes may be unshipped, warehoused, sorted, bought, sold and re-exported, without paying any customs duty or performing any customs formality. Ship yards may be established within the free zone as well as such industries as are connected with shipbuilding; but vessels turned out from those yards will be deprived of the benefit of the "building bounty" granted by the law of Jan. 31, 1903. For the setting up of any other industry, however, a special authorization will have to be obtained. No information is to hand with reference to the date at which it is proposed to put the new law in force.

Henry Bullard, the well-known tug engineer of Buffalo, died at his home last Saturday night after a severe illness.

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WELLMAN-SEEVER-MORGAN CO.

Most readers of the Review have a general knowledge of the plants that were owned by the Wellman-Seaver-Morgan Engineering Co. of Cleveland and the Webster, Camp & Lane Co. of Akron and also of the business which these companies conducted before they were consolidated recently under the name Wellman-Seaver-Morgan Co. Both the Cleveland and Akron plants have been catering to the same class of trade in a measure, but each plant has its individual trade characteristics. The character of output of the two concerns has been largely confined to equipping steel plants of all classes with machinery, building ore and coal conveying and hoisting plants, mining machinery, including hoisting engines, engines, building roofs, steel castings and gray iron castings, Wellman charging machines, hydraulic and electric cranes of all varieties and in general anything in the line of engineering development that the trade calls for. Some information regarding the finances of the new company is contained in a circular from the Cleveland Trust Co. regarding the sale of bonds. The circular contains a description of the works at Cleveland and Akron with their facilities and says of the bonds:

"We own and offer at 101 and accrued interest, but subject to prior sale and reserving the right to advance the price without notice, \$300,000 par value of the general-mortgage 6 per cent. gold bonds of the Wellman-Seaver-Morgan Co. The Wellman-Seaver-Morgan Co. is a corporation organized under the laws of the state of Ohio, with a capital stock of \$3,000,000 divided into \$1,000,000 7 per cent. cumulative preferred stock and \$2,000,000 common stock, and having net assets equal to more than three times the amount of the total bond issue. This company is a consolidation of the Wellman-Seaver-Morgan Engineering Co. of Cleveland and the Webster, Camp & Lane Co. of Akron, and is in the unique position of being able to furnish the complete equipment necessary to take the ore from the ground and put it into the finished product.

"These bonds are a first lien on all the property of the company, subject to \$400,000 first-mortgage 6 per cent. bonds of the Wellman-Seaver-Morgan Engineering Co., due June 1, 1906, but redeemable at 102 after June 1, 1904, and \$100,000 first-mortgage 6 per cent. bonds of the Webster, Camp & Lane Co., due Sept. 1, 1916, redeemable at 102 after Jan. 1, 1905. It is proposed in the plan of consolidation to retire these bonds as soon as they can be obtained thus making the new bonds the first lien upon the entire property. Payment of the bonds is guaranteed absolutely, both as to principal and interest, by S. T. Wellman, John MacGregor, A. D. Hatfield, Thomas R. Morgan Charles H. Wellman, John W. Seaver, S. H. Pitkin, G. H. Hulett, directors of the company.

"The profits for the year 1903 are based upon actually signed contracts, and are estimated at \$1,300,000. The average net profits for the years 1900, 1901, 1902 and 1903 are over \$500,000

per annum and are more than ten times the amount of the annual interest due on these bonds. We would especially call your attention to the fact that there is absolutely no water whatever in either the preferred or common stock. The new company starts out with a working capital of \$1,000,000. We would also call your attention to the fact that the estimated profits for the year 1903 are enough to pay this entire issue of bonds. The company's trial balance is the result of an audit of the books of the constituent companies by the Audit Company of New York, one of the best known firms of chartered accountants in the United States.

The United Engineering & Foundry Co. of Pittsburgh installed last year a complete heating and ventilating equipment in the roll shop of the Lincoln Foundry Department. The apparatus, which was furnished by the B. F. Sturtevant Co., consists of a steel-plate exhauster direct-connected to a horizontal, side-crank engine. The exhauster draws air from out-of-doors through a large steam heater built up in sections of 1-in. pipe, one of the sections receiving the exhaust from the fan engine.

The Lunkenheimer Co. of Cincinnati, manufacturers of brass and iron steam specialties, etc., have recently placed with the Nernst Lamp Co. of Pittsburgh a large additional order for Nernst lamps of various sizes. The Lunkenheimer plant is now illuminated throughout by this make of lamp, it having been found superior to others in its uniform quality of light, with all sizes of units, a feature that is impossible with a mixture of arc and incandescent lamps.

REDUCED FARES VIA PENNSYLVANIA LINES.

Excursion tickets will be sold via Pennsylvania Lines as follows:

To St. Louis, Mo., June 6 and 17 account thirty-first saengerfest of North American Saengerbund.

To Boston, Mass., July 2 to 5, inclusive, account National Educational Association.

For particulars consult ticket agent of Pennsylvania Lines.

Sunday excursions \$1.00 for round trip between any two stations within a distance of 100 miles, for each person in parties of five or more traveling together and returning same day by way of the Nickel Plate road. See nearest agent, or E. A. Akers, C. P. & T. A., Cleveland, O. 65 June 12

Special rates daily to points in the west or northwest by way of the Nickel Plate road. See nearest agent, or E. A. Akers, C. P. & T. A., Cleveland, O. 67 June 12

Ship Master Wanted.

Wanted.—First-class, experienced captain, who has had command of four-masted fore-and-aft schooners; one acquainted with west coast of South America. Must have experience of this trade and be well recommended. State experience, with copy of testimonials, and wages required to Box 44, Marine Review Pub. Co., 39-41 Wade Bldg., Cleveland. May 28

Steam Barge for Sale.

For Sale.—Steam barge, 131 ft. keel, 25 ft. beam, 9 ft. deep. Capacity, lumber, 260 M. ft.; coal, 375 tons. Good power; can handle two or three barges. Everything pertaining to this boat is in good condition. Terms cash. Address Lock Box 35, St. Clair, Mich. May 28.

Tugboat for Sale.

For sale at sacrifice. Tugboat 75 ft. 5 in. length; breadth, 18 ft. 5 in.; depth, 7 ft. 5 in.; gross tonnage, 54. Built by Standard Oil Co. Has large fire and wrecking pump, 14 in. cylinder. Most powerful boat of size in New York harbor. Ready for immediate service. All necessary fixtures and fittings. Last inspection September, 1902. M. F. Driscoll & Co., 11 Broadway, New York. May 28.

A NEW MAP.

Showing in Detail the Entire Water Front of BUFFALO, N. Y. Giving Soundings, Principal Buildings, Railroad Connections, Etc. A copy will be forwarded to responsible parties for inspection on request. Price on paper, \$6.00. Price on cloth, \$7.00. Address, HENRY P. JONES, 855 Niagara St., Buffalo, N. Y.

Steamer for Sale Cheap.

Light draught steamer C. W. Liken, 79 ft. over all, 18 ft. beam. Engines, 12 ft. square. In good condition. For further particulars address A. Wheeler, Bay City, Mich. June 4

For Sale Cheap.

Steamer International, 86 ft. long, 26 ft. beam, draught 9 ft. Fitted out and run this spring. In first-class condition.

Steamer John Haggart (Canadian), 100 ft. long, 18 ft. beam, draught 6 ft. In first-class condition. Running at present.

We have sold out our ferry business to Soo International Traction Co. and have these two boats left. Address Joseph Ganley, Sec'y and Treas., Sault Ste. Marie Ferry Co., Sault Ste. Marie, Mich. June 18

Scotch Marine Boiler for Sale.

Scotch Marine Boiler for sale. Size, 10 ft. by 78 in.; triple riveted; $\frac{5}{8}$ steel plate; dome 56 in. by 24 in.; two 4-in. and one 6-in. inlet in the dome; ninety-eight 3-in. tubes; stays $\frac{5}{8}$ center; allowed 169 lbs. steam pressure to the square inch. Boiler as good as new. Located at Detroit, Mich. For price address Isaac Applebaum, 38-40 Randolph street, Detroit, Mich. t.f.



Wanted to Charter.

Wanted to charter for season of 1903, a light draft steamer from 75 to 100 ft. over all, suitable for coal trade on Lake Michigan. Would prefer one under 6 ft. draft; good passenger accommodations and speed of at least 12 miles. Address L. S. Mace, Room 527 Reaper Block, Chicago. June 11.

Steamer and Tow Barge for Sale.

For Sale—Canadian steamer Orion, class A-2. Capacity 30,000 bushels of wheat or 500 M ft. of lumber or 900 tons coal.

Canadian tow barge Muskoka, A-2. Capacity 30,000 bushels wheat, or 600 M ft. of lumber, or 900 tons coal.

For particulars apply to Collins Bay Rafting & Forwarding Co., Ltd., Kingston, Ont. June 18.

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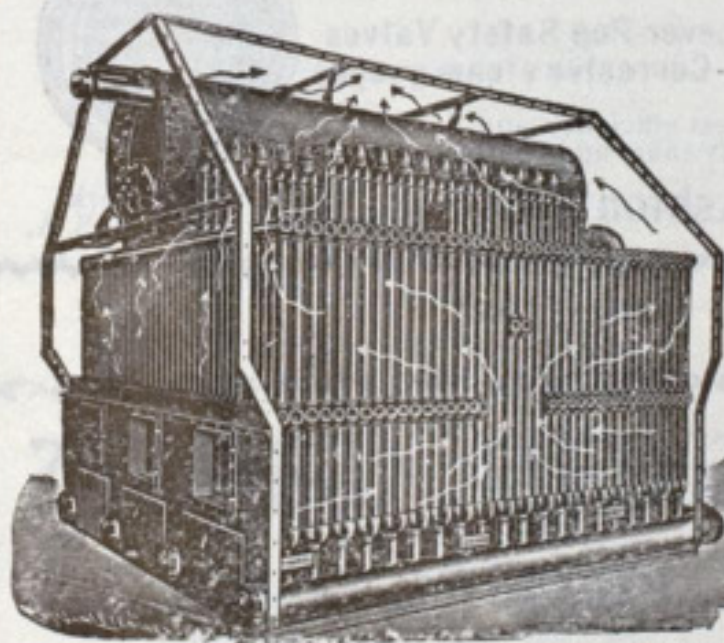
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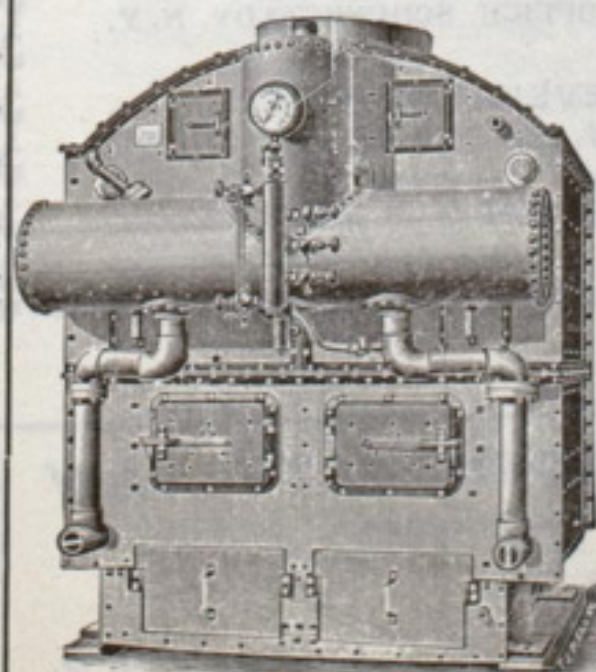
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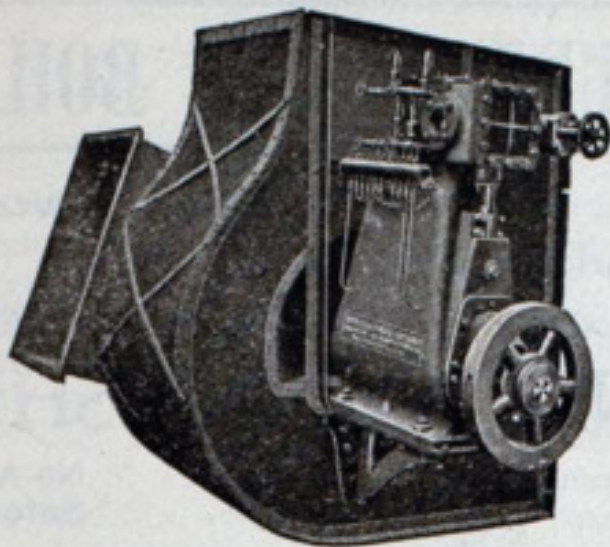
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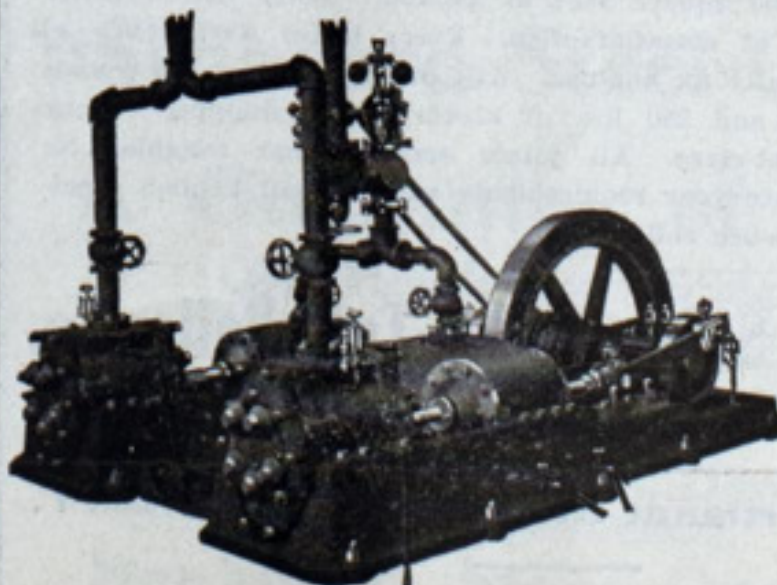
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